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It's Easy to Find the Service Data Folder You Need

CUMULATIVE INDEX No. 4 TO HOWARD W. PHOTOFACT SAMS & CO., INC. Radio Service Data Folders

SETS NOS. 1 THROUGH 25—OCTOBER 1, 1947

VALUABLE KEEP THIS INDEX HANDY

HOW TO USE THIS INDEX: To find the PHOTOFACT Folder you need, look for the name of the receiver in the alphabetical listing below. Then find the required model number under the receiver name. Opposite the model you will find the number of the Set in which it appears and the Folder number. For example, under *ADMIRAL*, Chassis 3A1, the reference is **2**—462-24. The bold **2** identifies the PHOTOFACT Set number in which the Folder appears. The light face numbers, 462-24, identify the individual Folder.

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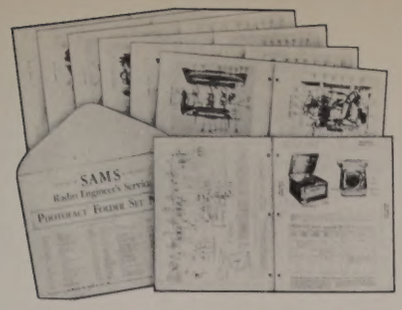

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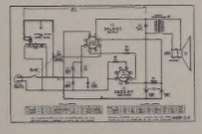

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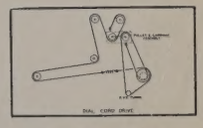

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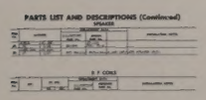

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The PHOTOFACT Servicer

OCTOBER 1, 1947 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 3, No. 26

ROBERT M. ELLIS, *Editor*

PARTICIPATING MANUFACTURERS

The other day, one of the many service technicians who has visited us said, "You should tell the story of the participating manufacturers in the 'SERVICER.' I believe it would interest every subscriber of PHOTOFACT Folders." We will try to do this—although unfortunately, it will seem less dramatic than if you could go in person from station to station on the "disassembly" line where the data for PHOTOFACT Folders is obtained.

Every service technician should know that of all technical information sources, the PHOTOFACT system alone obtains information directly from sample receivers. This unique system provides the *only sure method* of obtaining accurate listings of replacement parts, since available space as well as detailed mechanical and electrical specifications can be obtained with complete accuracy. If a shadow of doubt exists on the efficiency of any replacement part in any application, a test is made by actually trying the part in the set. It should also be noted that the actual replacement listings are not made by us, but are made by the engineers of the participating manufacturers.

It will instantly be apparent that here is a method of operation that is new and radically different from the customary "cut and paste-up" procedure usually associated with service compilation work. The method results from the vision of one man, Howard Sams, who with over thirty years association with the radio industry, sought a way to bring service engineers vitally needed repair data in an accurate, complete but condensed form so that repairs could be accomplished quicker, easier, and more satisfactorily.

As a sales executive, Mr. Sams had occasion over a number of years to observe and to direct the issuance of a variety of replacement manuals, and was acquainted with the almost insurmountable problems in this work. In the past, information for making replacement recommendations has been obtained in almost every instance by examining the schematics and parts list of factory service manuals or in reprinted compilations of them. Seldom was the manufacturer's blueprint available on the replacement part; the actual examination of the receiver for which a part was intended was virtually unknown. Mr. Sams reasoned—"If we could only work from the actual sets, we could achieve perfect accuracy. But more—we could originate standardized instruction sheets that would lop off hours of work per week for every professional repairman." Hundreds of service technicians were contacted, and their enthusiastic reception left no doubt that the idea would receive complete support by the servicing fraternity.

It was realized at the outset that the cost of this type of operation would be high because it would involve the direct handling of a physical sample of every receiver as it was placed on the market. Simple arithmetic showed that it was not "in the cards" to provide this new service, now called "PHOTOFACT Folders," on the basis of the direct returns from their sale. Accordingly the idea was broached to a number of progressive replacement parts manufacturers who had shown indications of having the interests of the service profession at heart; and their response was both instant and spontaneously enthusiastic. These concerns, whose names appear in PHOTOFACT Folders, are worthy of the support and respect of every service technician. Before an issue was ever printed, these concerns committed themselves financially *on confidence alone,* believing that PHOTOFACT Folder service would benefit you—that it would solve fundamental problems of an industry. The supporting or participating manufacturers are your friends—they are proving it with cash—not idle words. We think it is only fair to ask you to support them with your purchases.

You will be interested in the method we use for transmitting information to these participating manufacturers. To provide the maximum of clarity, standardized forms have been prepared for each product. All of these forms are reproduced in reduced size. These specimens show how complete, verified details are available to a participant manufacturer so that a PHOTOFACT replacement listing becomes a dependable fact rather than an optimistic hope.

Participating Manufacturers Are

PRODUCT	MANUFACTURER'S NAME
Batteries	Eveready (National Carbon Co.)
Capacitors	Aerovox
	Cornell-Dubilier
	Mallory
	Solar
	Sprague
Controls	Clarostat
	IRC
	Mallory
Resistors	IRC
R.F. Coils	Meissner
Speakers	Jensen
Transformers and Chokes	Merit
	Stancor
	Thordarson
Tubes	Sylvania
Phono Pickups and Cartridges	Astatic
Vibrators	Mallory
	Radiart

A few manufacturers have expressed interest in participating in our program but have refrained from doing so until their individual circumstances would permit them to join us. If there are any manufacturers whose products you would like to see covered by PHOTOFACT Folders, you can help. Write and tell them that you find PHOTOFACT Folders valuable in your work, and that you would like to see their products listed in PHOTOFACT Folders. The more participating manufacturers that join our group, the more valuable we can make the PHOTOFACT Service.

Every engineer in the PHOTOFACT "Disassembly" line is a Specialist. The details are too complicated, and the standards of accuracy are too high to allow any "jack of all trades" operation. There is the unpacking man, who handles the incoming shipments, the disassembly expert who takes sets apart (and puts 'em back together again) who gives the special disassembly instructions when required. Then the sets travel to the alignment station where precision alignment is given prior to the taking of stage gain measurements, then to the measurements man who specializes in voltage and resistance measurements. Then the receiver chassis move to the product men who carry on all details of the replacement listings.

Depend on PHOTOFACT listings when you purchase replacement parts—to do so will save time and effort for you; and will insure customer satisfaction.

★ ★

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

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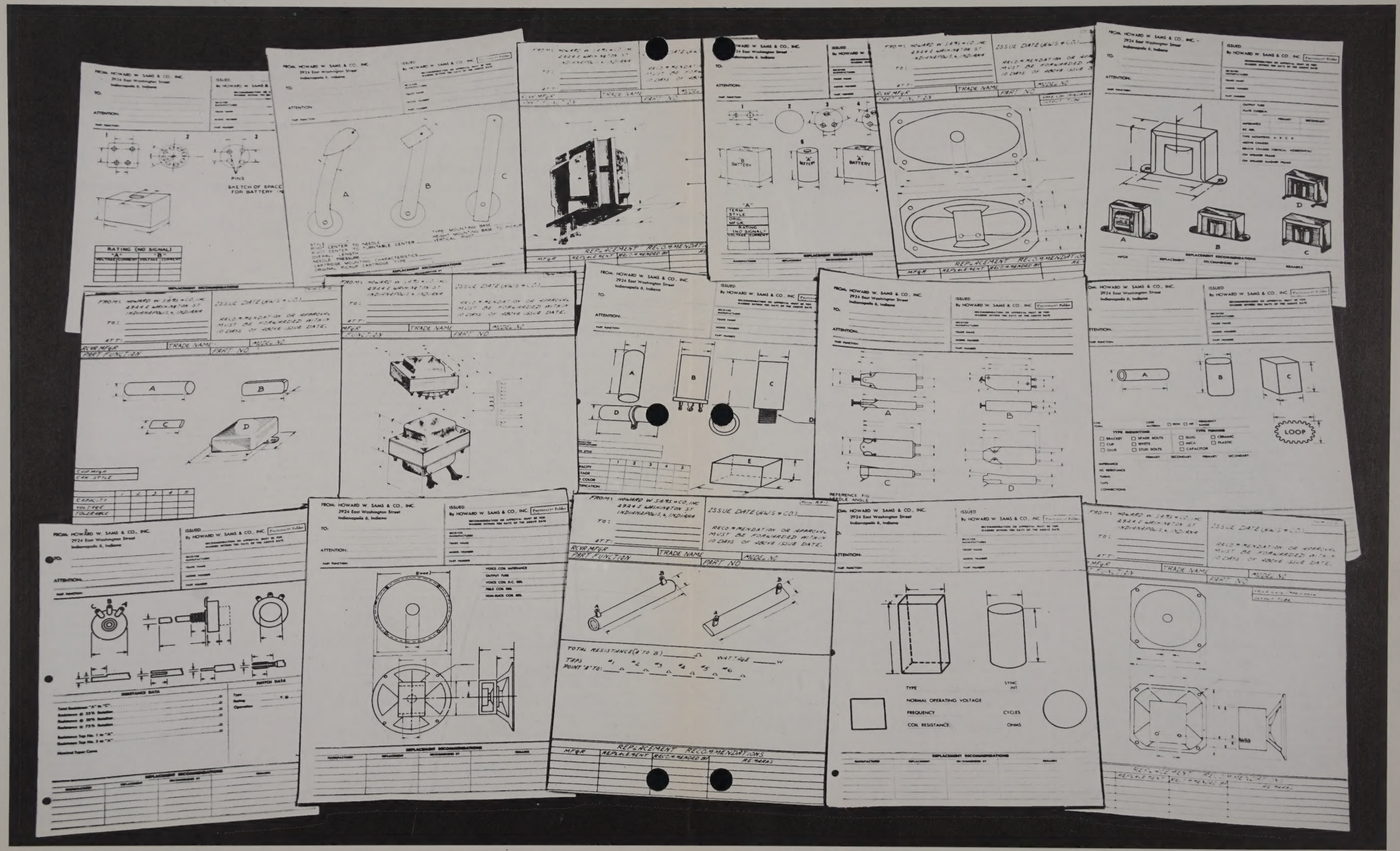
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana
TO:
ATTENTION:
PART FUNCTION
ISSUED
By HOWARD W. SAMS & CO. INC.
RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.
RECEIVER MANUFACTURER
TRADE NAME
MODEL NUMBER
PART NUMBER
RATING (NO SIGNAL)
"A" VOLTAGE
"A" CURRENT
"B" VOLTAGE
"B" CURRENT
PINS
SKETCH OF SPACE FOR BATTERY
A
B
C
STYLE
PIVOT CENTER TO NEEDLE
PIVOT CENTER TO TURNTABLE CENTER
OVERALL LENGTH
NEEDLE PRESSURE
CARTRIDGE MOUNTING CHARACTERISTICS
CARTRIDGE MOUNTING TYPE
ORIGINAL PICKUP CARTRIDGE TYPE
TYPE MOUNTING BASE
HEIGHT MOUNTING BASE TO PICKUP
VERTICAL PIVOT
REPLACEMENT RECOMMENDATIONS
MFGR
REPLACEMENT
RECOMMENDED BY
REMARKS
ISSUE DATE (MO'S + CO.)
RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.
RCVR MFGR
TRADE NAME
PART NO.
MODEL NO.
CHASSIS
CAN STYLE
CAPACITY
VOLTAGE
TOLERANCE
1
2
3
4
5
"A"
TERM
STYLE
ORIG
MFGR
RATING
IND SIGNAL
VOLTAGE
CURRENT
"B" BATTERY
"A" BATTERY
OUTPUT TUBE
PLATE CIRCUIT
IMPEDANCE
PRIMARY
SECONDARY
DC RES.
TYPE MOUNTING
ABOVE CHASSIS
BELOW CHASSIS VERTICAL
HORIZONTAL
ON SPEAKER FRAME
ON SPEAKER MAGNET FRAME
A
B
C
D
MFGR
REPLACEMENT
RECOMMENDED BY
REMARKS
VOICE COIL IMPEDANCE
OUTPUT TUBE
VOICE COIL D.C. RES.
FIELD COIL RES.
HUM-BUCK COIL RES.
(Cone)
TOTAL RESISTANCE ("A" TO B) _____ Ω
WATTAGE _____ W
TAPS #1 #2 #3 #4 #5 #6
POINT "A" TO: _____ Ω _____ Ω _____ Ω _____ Ω _____ Ω _____ Ω
REFERENCE FIG
NEEDLE ANGLE
TYPE
NORMAL OPERATING VOLTAGE
FREQUENCY
CYCLES
COIL RESISTANCE
OHMS
SYNC
INT
LOOP
TYPE MOUNTINGS
BRACKET
CLIP
GLUE
SPADE BOLTS
RIVETS
STUD BOLTS
SLUG
MICA
CAPACITOR
CERAMIC
PLASTIC
IMPEDANCE
DC RESISTANCE
TURNS
TAPS
CONNECTIONS
SWITCH DATA
Type
Rating
Operation
RESISTANCE DATA
Total Resistance "A" to "C"
Resistance @ 25% Rotation
Resistance @ 50% Rotation
Resistance @ 75% Rotation
Resistance Tap No. 1 to "A"
Resistance Tap No. 2 to "A"
Matched Tuner Cams
REPLACEMENT RECOMMENDATIONS
MANUFACTURER
REPLACEMENT
RECOMMENDED BY
REMARKS

ADMIRAL 10A1

Photofact Set No. 3—463-30

"Complaint: Static starting only after the set heats up.

"The trouble was found to be in a defective screen dropping resistor, PHOTOFACT Part 51, manufacturers Part No. 61A1-3, 10,000 ohms 5-watt. This part caused trouble in several sets."

Submitted by: Mr. V. L. Day, Day's Home Radio Service, 2103 Adoue Street, Alvin, Texas.

★ ★

CHRYSLER (MoPar) No. 600

"If the Chrysler Motor Company radio MoPar No. 600 should fail to align properly and you find it impossible to make the oscillator track, check the value of the .00035 mfd. temperature compensated condenser (ceramic) in the oscillator circuit. It may lose capacity with age and you will probably find that it measures considerably less than its rated value."

PHILCOPHONE 901 and 902

"When oscillation develops in the model 901 and 902 Philcophone intercom system and fails to respond to any of the usual remedies change the dual cathode filter block. I have found that even though all condensers test o.k. there is often enough coupling between sections of the block to cause feedback and oscillation. It is better to replace the block with two separate condensers.'

Submitted by: Reid B. Thatcher, Reid's Radio Service, Route 5, Nampa, Idaho.

★ ★

TEMPLE F611

Photofact Set No. 9—469-32

"Complaint: Set plays on battery—dead on a.c.

"Check the 15 ohm resistor in the cathode circuit of the 117Z6, (Photofact Item 35). This has been opening up."

Submitted by: Mr. Hoppe, Service Manager, Vogue Distributing Co., 1916 North Meridian Street, Indianapolis, Indiana.

★ ★

HOWARD MODEL 920

Photofact Set No. 5—465-7

"A number of these sets have come in with a distortion that sounded like a leaking audio coupling condenser, but in each case it has proved to be the screen grid resistor to the 1S5, (Photofact Item 27). This is a 3.3 meg. resistor and changes its value to 10 and 15 meg. Replacing with a good quality resistor is the cure."

GENERAL ELECTRIC 180

Photofact Set No. 20—4710-11

"Complaint: Dial string slipping when there seems to be plenty tension on it.

"This is caused by the dial string drum binding in its bushing—the one that is fastened to the dial face and not the drum on the tuning condenser. The cure is to remove this assembly and oil the bushing and work it by hand until it turns freely. The R.F. section of this set usually requires realigning."

Submitted by: Mr. Roy L. Mott, Service Manager, DeLoach Specialty Co., Thomasville, Alabama.

★ ★

GAROD 5D-2

Photofact Set No. 12—472-12

"Complaint: The set is intermittent, all tubes check good and voltages check o.k.

"The loop antenna of this set is in the front door of the set, and the hinges act as conductors through the front plate to the inner part of case. The front plate of the set is metal and has two gaps in the top edge to clear the hinges. However, this plate will shift about and short to the hinges and cause the above condition. The remedy is obvious; reset the plate so that it has sufficient clearance from the hinges."

Submitted by: Mr. E. J. Barnett, Jr., Lektro-Mecs, 4940 Newport Ave. (Ocean Beach), San Diego 7, California.

PHILCO 46-1201

Photofact Set No. 4—464-35

"Complaint: Dead over entire band.

"The top soldering lug on the oscillator section of the gang condenser was found to be shorting to the frame of the condenser. This condition was found in two sets. Bend the lug until clear."

Submitted by: Mr. G. G. Crose, 102 N. Clifton, Park Ridge, Illinois.

★ ★

UTAH RECORD CHANGER 550

Photofact Set 8

"Complaint: The last record falls down on the tone arm.

"Remedy: The toggle plate spring (Photofact Item 13), is too weak. Remove, tighten and replace, and you will find that the changer will work o.k."

Submitted by: Henry E. Nordstrom, Oakhurst Radio Repair, Elma, Washington.

★ ★

FORD 6MF080

Photofact Set No. 10—4610-18

"Complaint: Intermittent operation.

"The grid lead of the 7B8 converter is clamped under the bracket holding the trimmer (Photofact A6) to the chassis. This clamp had broken the insulation on the grid lead wire at a point about ¾" from the trimmer, and was shorting the grid to the chassis."

Submitted by: Mr. C. V. Miller, Miller Radio Service, Crossett, Arkansas.

★ ★

BENDIX 646A

Photofact Set No. 2—462-28

"Complaint: R.F. Oscillation, broad tuning, will not align.

"The tuning condenser was found to be grounded to the chassis which shorted the a.v.c. system. The trouble was in the rubber grommet on the tuning condenser."

Submitted by: Mr. R. LaFontaine, 904 Chestnut Street, Alameda, California.

★ ★

STEWART-WARNER MUSIDORA A92CR6

Photofact Folder No. 4716-25

"When the receiver plays on FM and records, but is dead on AM, check the staple holding the leads on the loop. It may be shorting them."

Submitted by: Mr. Tom B. McCarthy, McCarthy's Radio Sales & Service, 147 East Main Street, Luray, Virginia.

★ ★

SERVICE SUGGESTIONS

"A clothespin is handy to hold the battery switch closed on the Philco 46-350 when working on the set with the back open, and while playing it on battery. The end of the clothespin should be tapered.

"I also use clothespins for clamps when gluing loose speaker cones.

"Intermittents are located easily by using a small electric hand hair dryer concentrated on suspected by-passes and coil connections."

Submitted by: Mr. Ray Rusthoi, Ray's Radio Service, 814 Foothill Blvd., La Canada, California.

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Volume 3—Set No. 27	**November 1**
Volume 3—Set No. 28	**November 15**
Volume 3—Set No. 29	**December 1**
Volume 3—Set No. 30	**December 15**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*

ADMIRAL CHASSIS
MODEL 5H1 BATTERY OPERATED

ADMIRAL CHASSIS
MODEL 5H1 BATTERY OPERATED

ADMIRAL MODEL 7P33

TRADE NAME	Admiral, Models 7P32, 7P33, 7P34 (Ch. 5H1)
MANUFACTURER	Admiral Radio Corp., 3800 W. Cortland St., Chicago 47, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 1U4 Converter, 1R5 IF Amp., 1U4 Det.-AVC-AF, 1S5 Power Output, 3V4 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 9V DC "A" Supply and 90V DC "B" Supply in Pack Form. .140 Amps. @ 117V AC or 50MA @ 9V DC and 14MA @ 90V DC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Check dial drum position on shaft. Tuner arm should just complete downward travel when tuning cap. is fully closed. At this point tuner arm should be on short flat part of cam. Pointer should be at last reference mark at low frequency end of dial.
If RF tuning slug must be changed use the following procedure. Turn tuning cap. fully closed. Screw the slug adjustment screw about halfway down. Place the slug in coil so that the top of it is flush with top of coil form. Solder slug wire to adjusting screw making certain wire is straight. Then follow procedure below for alignment. Use battery power when available. If AC power is used use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD. with AC power 250MMFD with bat. power	High side to Pin 6 (grid) 1R5. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust in order given for maximum output. Then repeat in same order.
2	"	High side to rear stator of tuning cap. Low side to B-.	1620KC	"	"	A5	Adjust for maximum output.
3	"	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output. Replace in cabinet and connect loop.
4	250MMFD	High side to ext. ant. lead. Low side to ext. ground lead.	"	"	"	A7	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

ADMIRAL CHASSIS 5H1

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1U4	1U4	6AR	
2	IF Amp.	1R5	1R5	7AT	
3	Det.-AVC-AF	1U4	1U4	6AR	
4	Power Output	1S5	1S5	6AU	
5	Rectifier	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	67C7-5		DY-401			UP7D63	● Filter
B	20	150							■ "
C	20	150							▲ "
D	200	25			M-250-25				"
7	4	150	67A4-2	TC40	M-8-150	UT-41	PRS150-4	BR415	AF Plate Decoup.
8	.05	400	64B1-22	TP426	MPW-4-05	TC-15	484-05	DT4S5	Line Filter
9	.18	200	64A2-2	TP429	S-4-2		484-.2	DT4P2	Line Isolation
10	.002	600	64B1-14	TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
11	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coup.
12	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Screen Bypass
13	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coup.
14	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Osc. Feedback
15	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
16	.25	200	64B1-28	TP430	S-4-25	TC-2	484-.25	DT4P25	Fil. Bypass
17	100		65B7-17	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
18	250		65B7-22	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter
19	100		65B7-17	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
20	15		65B6-18			MS-415			Fixed Trimmer
21	250		65B7-22	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling
22	420	500	65B1-13						Fixed Trimmer
23	250		65B7-22	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling
24	10		65B6-24	MC215	MO.5-41	MS-41	1468-00001	5W5Q1	Fixed Trimmer

CONTROLS

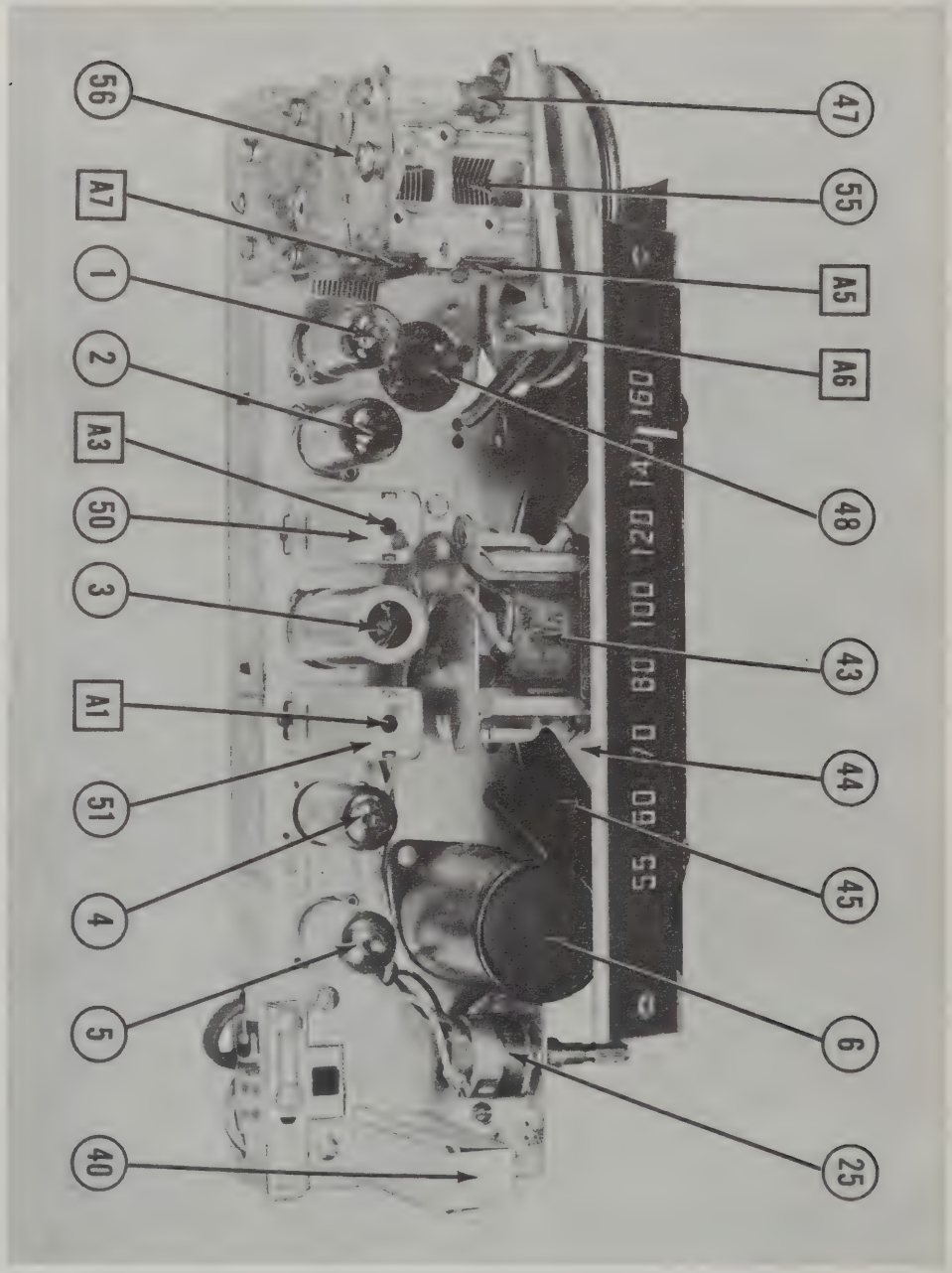
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	1 Meg.	½	75B1-18	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
26	2.2 Meg.	¼	60B3-225	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
27	1 Meg.	¼	60B3-105	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
28	100KΩ	¼	60B3-104	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
29	18KΩ	¼	60B2-183	BTS-18K	Br.-Gray-Or. Converter Screen Dropping
30	3.3 Meg.	¼	60B2-335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
31	10 Meg.	¼	60B3-106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	4.7 Meg.	¼	60B2-475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
33	470KΩ	¼	60B3-474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
34	10KΩ	¼	60B3-103	BTS-10K	Br.-Blk.-Or. Decoupling
35	2.2 Meg.	¼	60B3-225	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
36	150Ω	¼	60B2-151	BW-½-150	Br.-Grn.-Br. Filament String
37	220Ω	¼	60B2-221	BW-½-220	Red-Red-Br. Filament String
38	820Ω	¼	60B2-821	BTS-820	Gray-Red-Br. " "
39	1500Ω	¼	60B2-152	BTS-1500	Br.-Grn.-Red " "
40A	1300Ω	5	61A6-1	ABA-2500	" " - See Note
B	1300Ω				" "
41	2700Ω	1	60B14-272	BTA-2700	Red-Vi.-Red Filter
42	47Ω	1	60B14-470	BW-1-47	Yl.-Vi.-Blk. Surge Limiter

Note-On IRC replacement set slider at center.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA ADMIRAL PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
43	[illegible]	2.4Ω	40Ω	.8Ω	[illegible]	A-[illegible]*	T[illegible]*	A-[illegible]*	*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA ADMIRAL PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
44	FIELD [illegible]	VC IMP. 3.2Ω	78D17-3			
45	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ADMIRAL PART No.	REPLACEMENT DATA MEISSNER PART No.	
46	Loop Ant.		.6Ω			
47	Loop Load. Coil		2.2Ω	[illegible]		
48	RF Coil		4Ω	AB100-7		Item 48 is slug tuned and ganged with tuning cap.
49	Osc. Coil	1.2Ω	5.5Ω	69A15	14-1040	
50	Input IF	21Ω	21Ω	72B28-1	16-6668	
51	Output IF	21Ω	21Ω	72B28-1	16-6669	

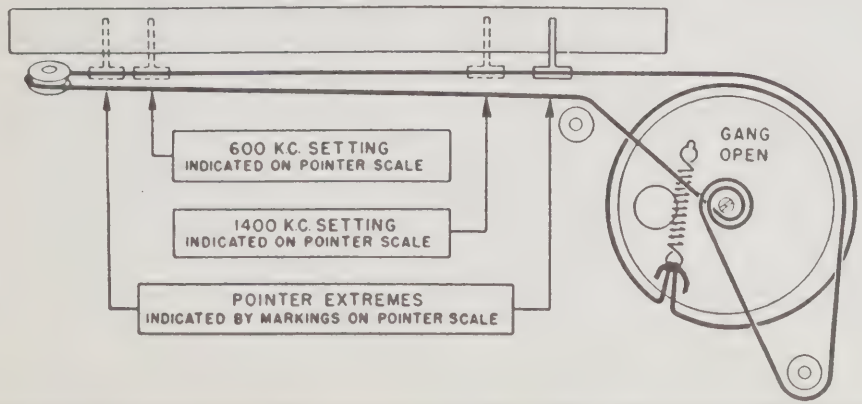
BATTERIES

ITEM No.	VOLTAGE	ADMIRAL PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
52	1.5 "A" 90 "B"				#754	

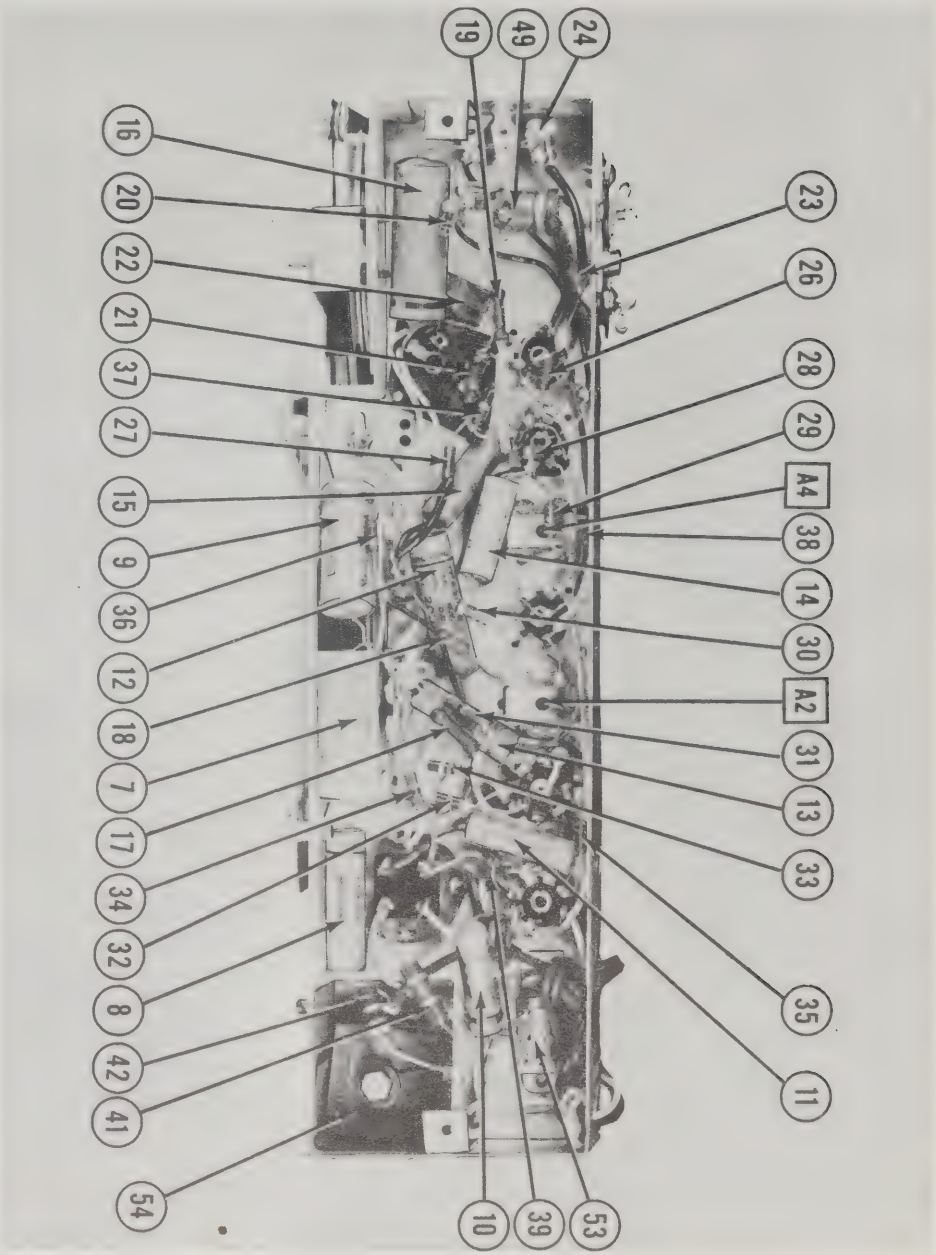
MISCELLANEOUS

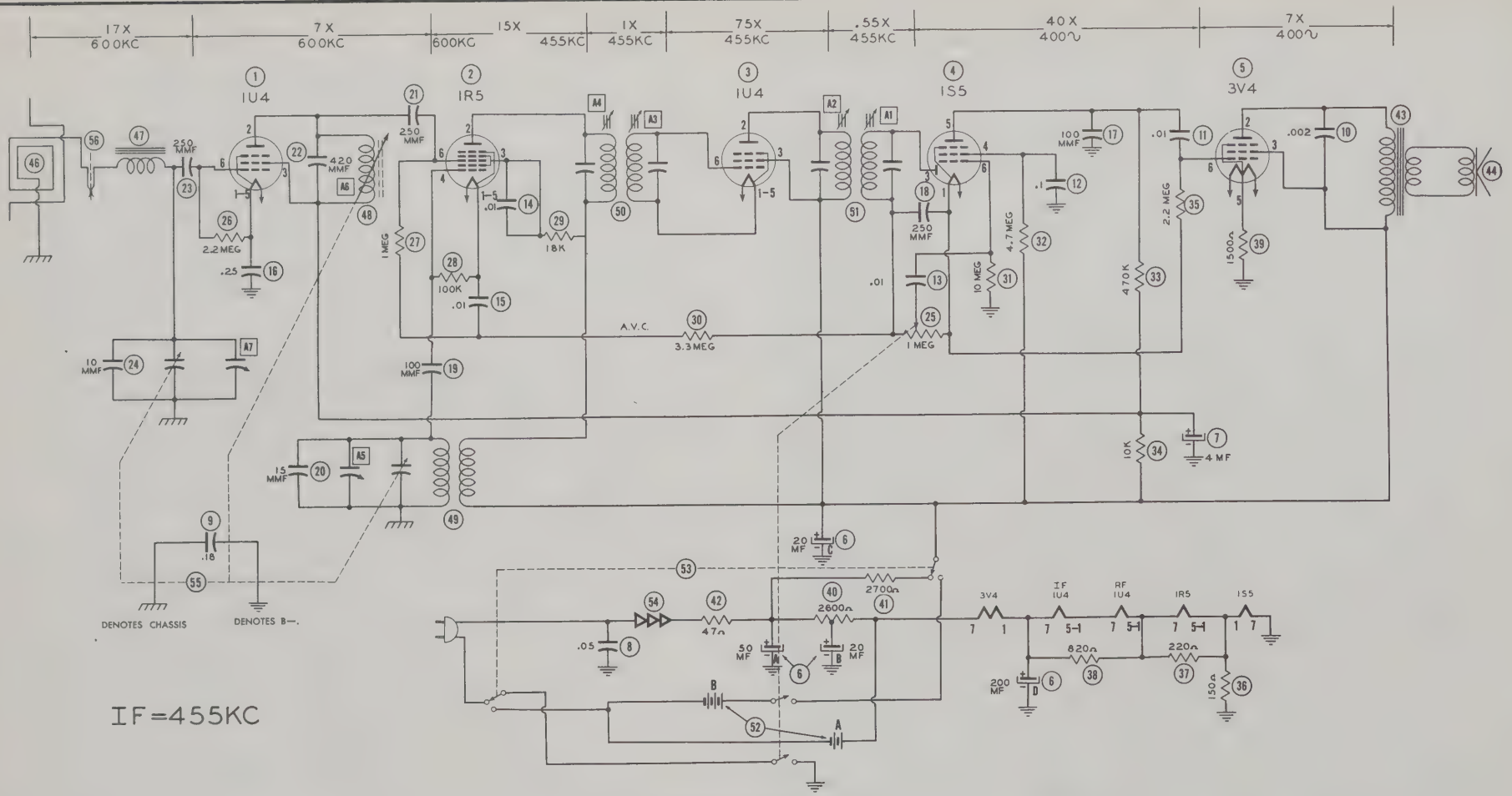
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
53	Switch	77A2-4	Power Change
54	Rectifier	63A1-2	Selenium
55	2 Gang Var. Cap.	[illegible]6	0-420MMF, 0-162MMF
56	Jack		Antenna

DIAL CORD STRINGING



CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1U4	2.6VDC	90VDC	90VDC	0V.	2.6VDC	.2VDC	4VDC
2	1R5	1.3VDC	90VDC	50VDC	-10VDC§	1.3VDC	0V.	2.6VDC
3	1U4	4VDC	90VDC	90VDC	0V.	4VDC	4VDC	5.3VDC
4	1S5	1.3VDC	0V.	.2VDC	3.7VDC	20VDC	-.1VDC	0V.
5	3V4	5.3VDC	87VDC	90VDC	0V.	6.6VDC	.1VDC	8VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1U4	*	15KΩ	15KΩ	INF.	*	2.2 Meg.	*
2	1R5	*	5KΩ	23KΩ	100KΩ	*	6 Meg.	*
3	1U4	*	5KΩ	5KΩ	INF.	*	55Ω	*
4	1S5	*	INF.	900KΩ	5 Meg.	485KΩ	10 Meg.	0Ω
5	3V4	*	5KΩ	5KΩ	INF.	*	2.2 Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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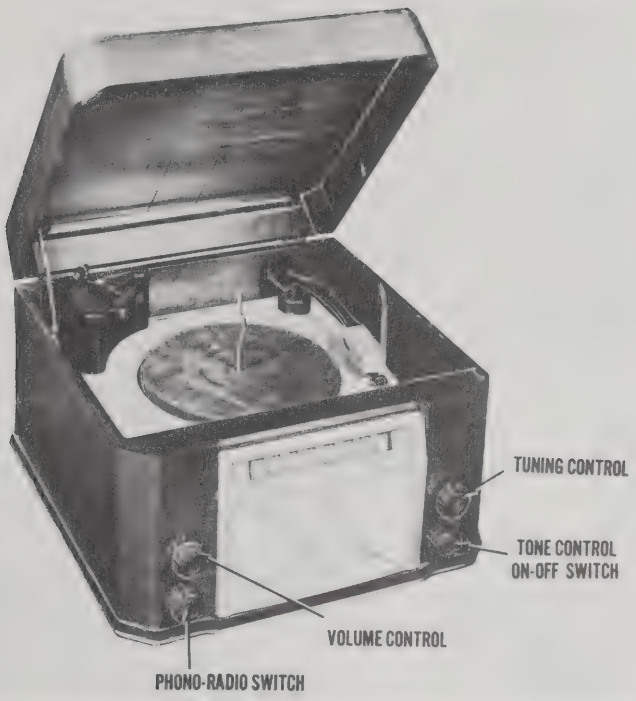
4716-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to B-.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

ADMIRAL CHASSIS
MODEL 6L1



ADMIRAL CHASSIS
MODEL 6L1

ADMIRAL MODEL 7RT42

TRADE NAME	Admiral, Models 7RT41, 7RT42, 7RT43 (Chassis 6L1)
MANUFACTURER	Admiral Corp., 3800 W. Cortland, Chicago 7, Ill.
TYPE SET	AC Operated Combination Radio-Phono Superheterodyne Receiver
TUBES (SIX)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC, 12SJ7 Audio Amp., 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1630KC RATING .230 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to first hole at left end of dial backplate. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	250 MMFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	250 MMFD	"	1630KC	"	"	A5	Adjust for maximum output. Replace receiver in cabinet.
3		Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. This adjustment is accessible through a small hole in the rear of the cabinet.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove phono-pickup plug from chassis.
3. Disconnect phono motor plug.
4. Remove two wood screws holding loop antenna in cabinet.
5. Remove four hex head screws holding chassis in cabinet. Remove chassis and loop from cabinet.

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PARTS LIST AND DESCRIPTIONS

ADMIRAL CHASSIS MODEL 6L1

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC	12SQ7	12SQ7	8Q	
4	Audio Amp.	12SJ7	12SJ7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	5AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	67A14-1	TN129	DSB-40302C-150	TA-303	PRSA150-30-30	E2422150	Filter - Yellow
B	30	150							" - Blue
C	20	150					PRS150-20		" - Red
D	20	25		TC26	M-25-25	TA-25	PRS25-25		Cathode Bypass-Green
8	.05	400	64B1-22	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.03	400	64B1-23	TP424	S-4-03	TC-13	484-03	DT4S3	Output Plate Bypass
10	.01	600	64B1-25	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
11	.05	400	64B1-22	TP426	S-4-05	TC-15	484-05	DT4S5	AF Screen Bypass
12	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolation-See Note 1
13	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
14	.002	600	64B1-14	TP405	S-6-002	TC-22	684-002	DT6D2	Tone Comp.
15	.001	600	64B1-15	TP404	S-6-001	TC-21	684-001	DT6D1	Phono Coupling
16	.1	200	64B1-30	TP428	S-4-1	TC-1	484-.1	DT4P1	Phono Decoupling
17	.05	400	64B1-22	TP426	S-4-05	TC-15	484-05	DT4S5	Shield Isolation
18	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Tone Comp.
19	.05	400	64B1-22	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
20	.1	200	64B1-30	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
21	.02	200	64B1-24	TP423	S-4-02	TC-12	484-02	DT4S2	Fixed Pad-See Note 2
22	.005	600	64B1-12	TP408	S-6-005	TC-25	684-005	DT6D5	Ext. Ant. Coupling
23	15		65B6-18		MOS.5-42	MS-415		5W5Q2	AF Plate Bypass-See Note2
24	250		65B6-5	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter
25	500		65B6-6	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Tone Comp.
26	15		65B6-18		MOS.5-42	MS-415		5W5Q2	Fixed Trimmer
27	50		65B6-4	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid

Note 1-Later productions use .18MFD. Admiral Part #64A2-2.
Note 2-Not used in all models.

CONTROLS

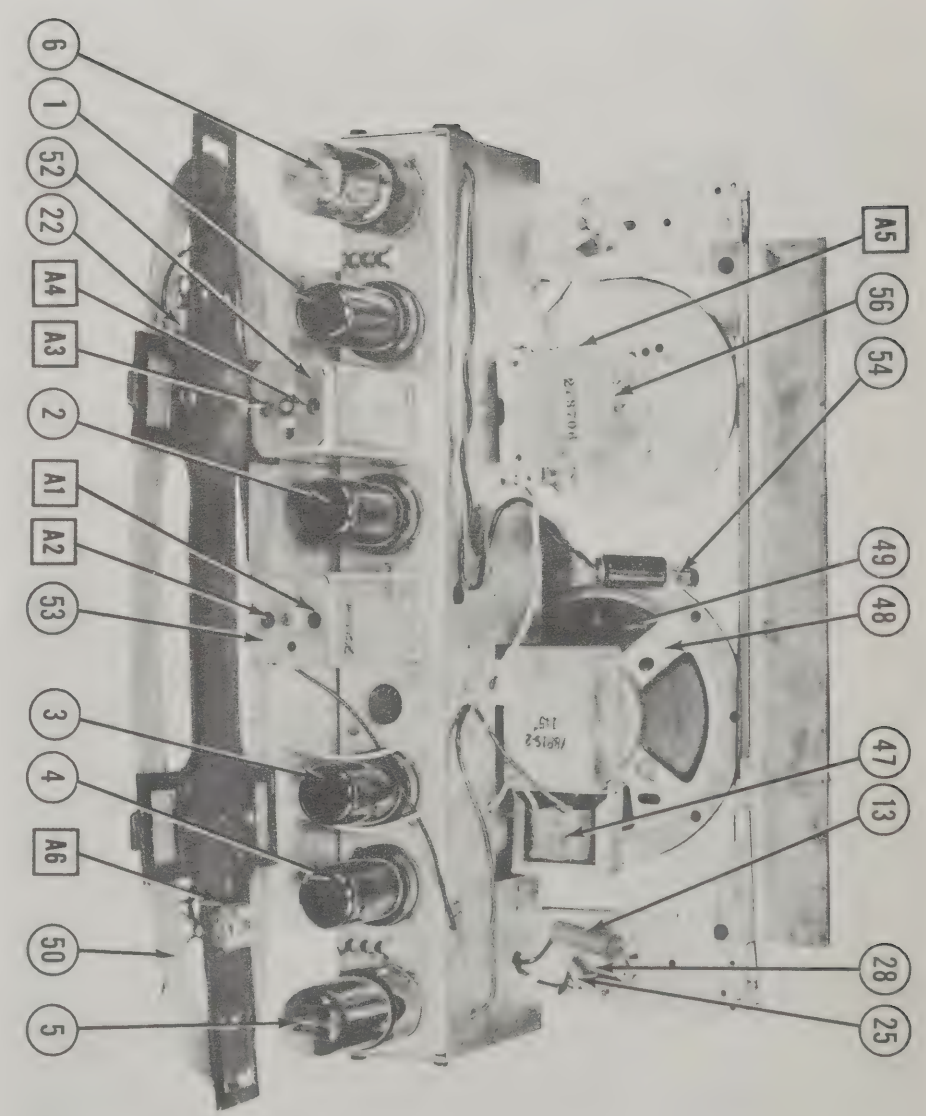
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	1 Meg.	½	75B2-6	TM243		AT-112	Volume Control
B	Shaft		Not Req.	S826		KSS-6	Attach to 28A per instructions
29A	2 Meg.	½	75B1-12	MK403	D13-139	AM-33-S	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-6	Attach to 29A per instructions
C	Switch		" "	M26	41	SW-4	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
30	22KΩ	½	60B8-223	BTS-22K	Red-Red-Or. Oscillator Grid
31	10 Meg.	½	60B8-106	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
32	1 Meg.	½	60B8-105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
33	100KΩ	½	60B8-104	BTS-100K	Br.-Blk.-Yl. Diode Filter
34	27KΩ	½	60B8-273	BTS-27K	Red-Vi.-Or. Tone Compensation
35	33KΩ	½	60B8-333	BTS-33K	Or.-Or.-Or. Phono Dropping-See Note
36	22KΩ	½	60B8-223	BTS-22K	Red-Red-Or. Phono Decoupling
37	100Ω	½	60B8-101	BTS-100	Br.-Blk.-Br. Decoupling
38	100KΩ	½	60B8-104	BTS-100K	Br.-Grn.-Yl. Line Isolator
39	4.7 Meg.	½	60B8-475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
40	1.8 Meg.	½	60B8-185	BTS-1.8 Meg.	Br.-Gray-Grn. AF Screen Dropping
41	100KΩ	½	60B8-104	BTS-100K	Br.-Blk.-Yl. AF Plate Load
42	470KΩ	½	60B8-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
43	100Ω	1	60B1A-101	BW-1-100	Br.-Blk.-Br. Output Cathode
44	33Ω	1	60B1A-33	BW-1-33	Or.-Or.-Blk. Screen Limiter
45	270Ω	1	60B1A-271	BW-1-270	Red-Red-Br. Filter
46	100Ω	1	60B1A-101	BTA-1700	Br.-Blk.-Red Filter

Note-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ADMIRAL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
47	2200Ω	3.2Ω	250Ω	1.0Ω	98A17	A-3676*	T22S45*	A-3328*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ADMIRAL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-107†		†Fabricate new mounting bracket.
48	PM	3.2Ω	78B19-1	Mod. P5-V		
	CONE DIA.	VC DIA.				
49	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	
50	Loop Ant.	.1Ω	1.5Ω	69B13		
51	Osc. Coil		5.6Ω	69A14	14-1040	
52	Input IF	18Ω	15Ω	72B3	16-6658	
53	Output IF	21Ω	22Ω	72B4	16-6657	

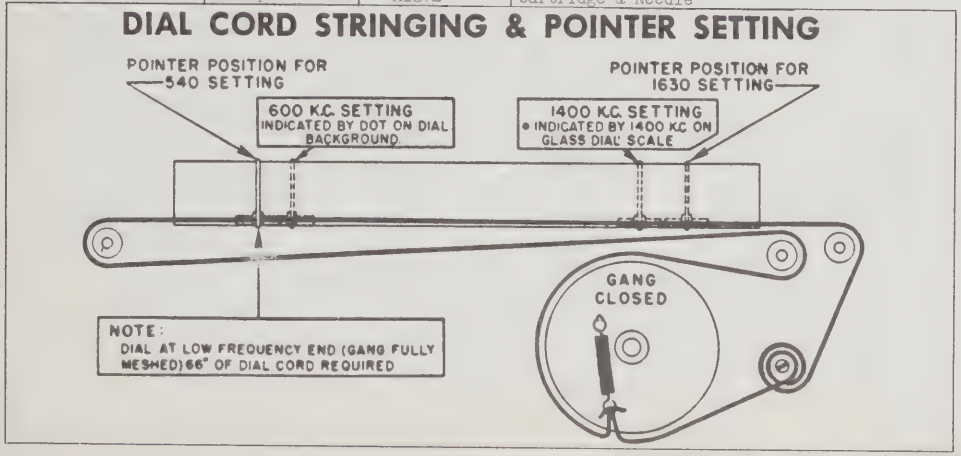
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ADMIRAL PART No.		
54	Bayonet	6-8	0.15	Brown	81A1-8		Type 47

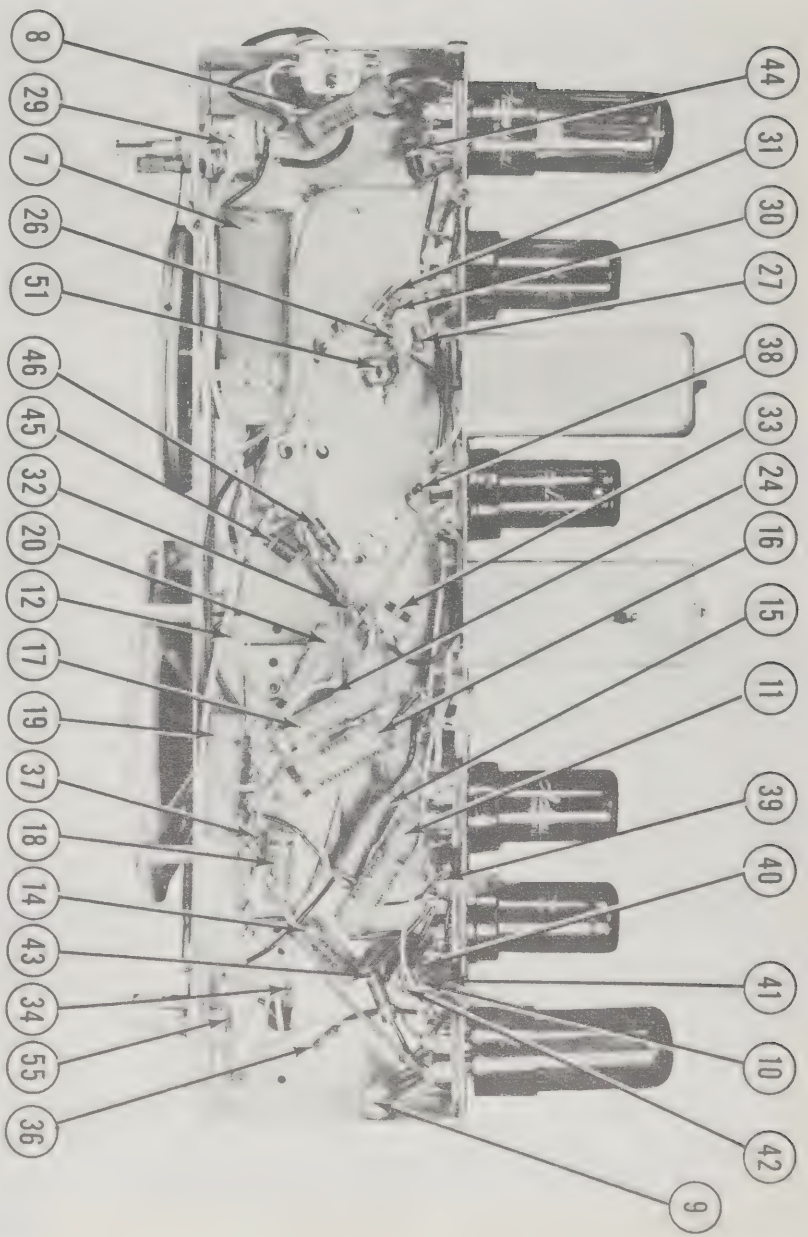
MISCELLANEOUS

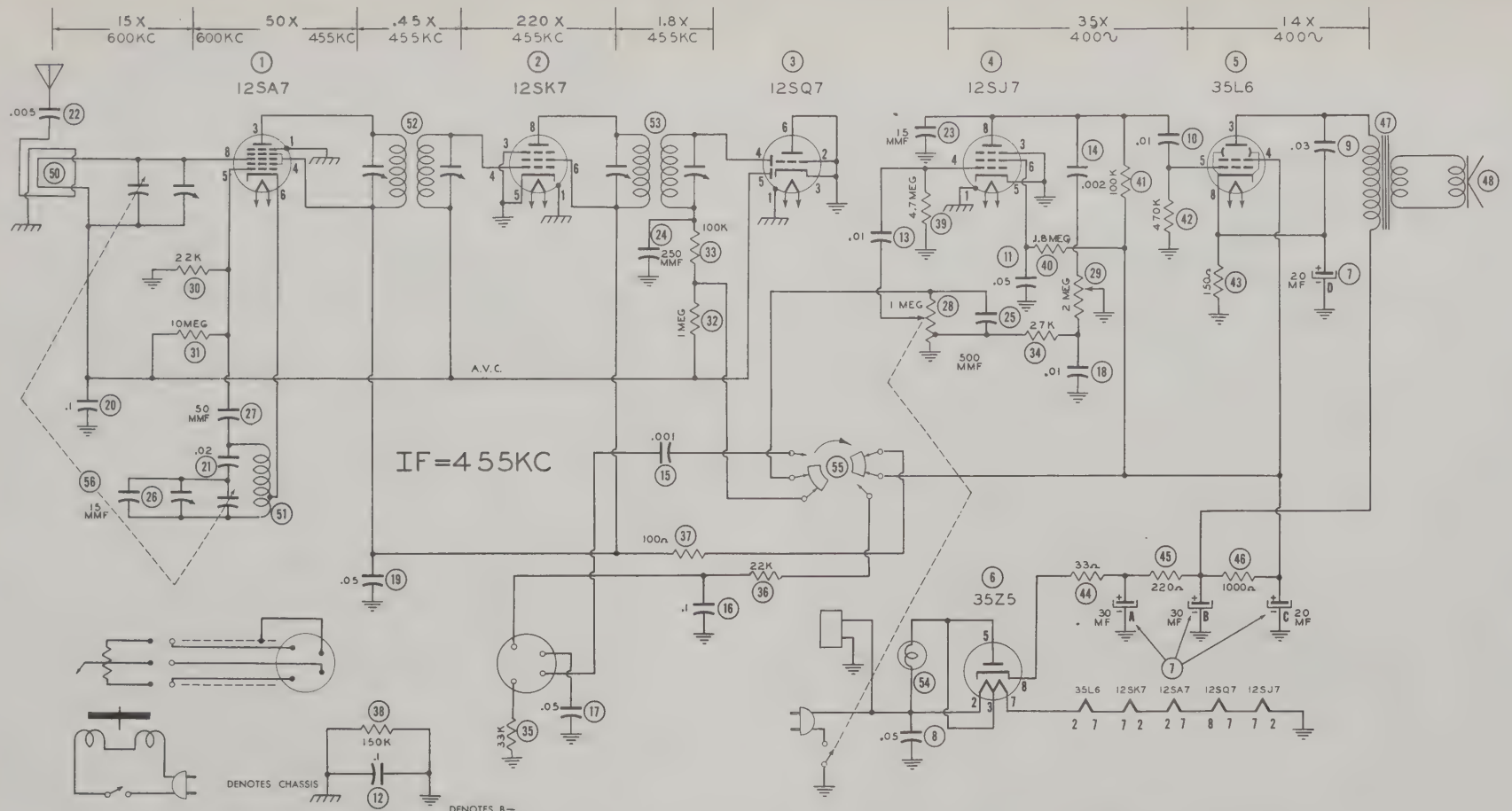
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
55	Switch	77A16-2	Radio-Phono
56	2 Gang Var. Cap.	68P6	0-420MMF, 0-162MMF
	Dial Scale	21B35-1	(7RT41, 7RT42)
	" "	21B33-1	(7RT43)
	Escutcheon	23C22-1	(7RT41, 7RT43)
	Knob	38A10-1	
	Pointer	23A31	
	Pickup	A1372	Cartridge & Needle

DIAL CORD STRINGING & POINTER SETTING


POINTER POSITION FOR 540 SETTING
600 K.C. SETTING INDICATED BY DOT ON DIAL BACKGROUND
POINTER POSITION FOR 1630 SETTING
1400 K.C. SETTING • INDICATED BY 1400 K.C. ON GLASS DIAL SCALE
GANG CLOSED
NOTE: DIAL AT LOW FREQUENCY END (GANG FULLY MESHED) 66" OF DIAL CORD REQUIRED

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	85VAC	77VDC	77VDC	-7.7VDC§	0V.	25VAC	-.6VDC
2	12SK7	0V.	37VAC	0V.	-.6VDC	0V.	77VDC	50VAC	77VDC
3	12SQ7	0V.	0V.	0V.	-.4VDC	-.4VDC	0V.	12VAC	25VAC
4	12SJ7	0V.	0V.	0V.	-.5VDC	0V.	10VDC	12VAC	62VDC
5	35L6GT	0V.	85VAC	84VDC	78VDC	0V.	0V.	85VAC	4.5VDC
6	35Z5GT	0V.	117VAC	112VAC	0V.	112VAC	113VDC	85VAC	116VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RADIO-PHONO SWITCH IN RADIO POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	160KΩ	40Ω	50KΩ	50KΩ	22KΩ	.6Ω	25Ω	1.7 MEG.
2	12SK7	160KΩ	40Ω	0Ω	1.7 MEG.	0Ω	50KΩ	50Ω	50KΩ
3	12SQ7	160KΩ	0Ω	0Ω	1.MEG.	1.7 MEG.	0Ω	13Ω	25Ω
4	12SJ7	160KΩ	0Ω	0Ω	5 MEG.	0Ω	1.8 MEG.	18Ω	140KΩ
5	35L6GT	INF.	85Ω	50KΩ	50KΩ	50KΩ	INF.	50Ω	140Ω
6	35Z5GT	INF.	115Ω	112Ω	INF.	112Ω	50KΩ	85Ω	50KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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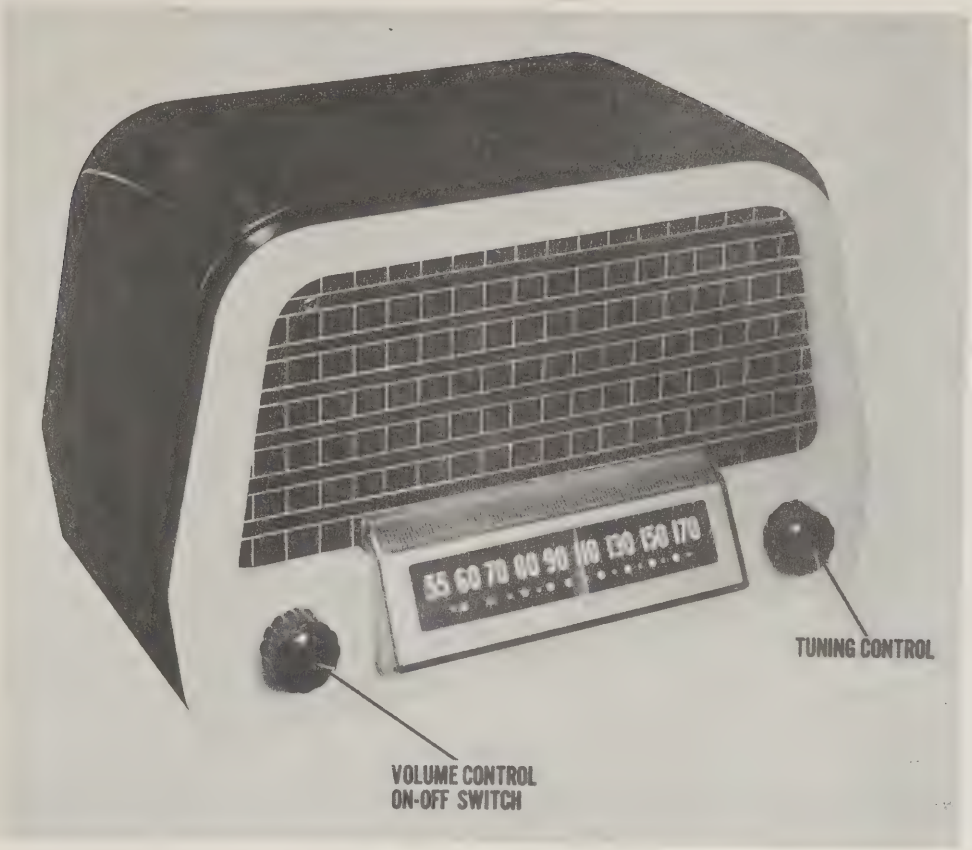
4716-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



AIR KING
MODEL A-600

AIR KING
MODEL A-600

AIR KING MODEL A-600

TRADE NAME	Air King, Model A-600 (Ch. 4681)
MANUFACTURER	Air King Prod. Co., Inc., 1523 63rd St., New York, N.Y.
TYPE SET	AC-DC Superheterodyne with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	530-1700KC
RATING	.240 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to left stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD.	High side to ext. ant. terminal. Low side to chassis.	1700KC	"	"	A5	Adjust for maximum output.
3	200MMFD.	"	1500KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET 26 FOLDER #4716-3

PARTS LIST AND DESCRIPTIONS

AIR KING
LABEL

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	9N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	9N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KING PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	2073	FP214	DY-5030-150	EL-35	AF1010D	UP5315	▲ Filter
B	30	150							■ "
8	.05	400		TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.25	200		TP430	S-4-25	TC-2	484-25	DT4P25	RF Bypass Pwr. Supp.
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
11	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Bias Filter
12	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
14	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
15	.005	400		TP408	S-6-005	TC-2	484-005	DT6D5	Ext. Ant. Isolation
16	510	500		MC245	MO.5-35	1FM-35	1468-0005	5W5T5	AF Plate Bypass
17	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
18	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "
19	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	½	2478	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

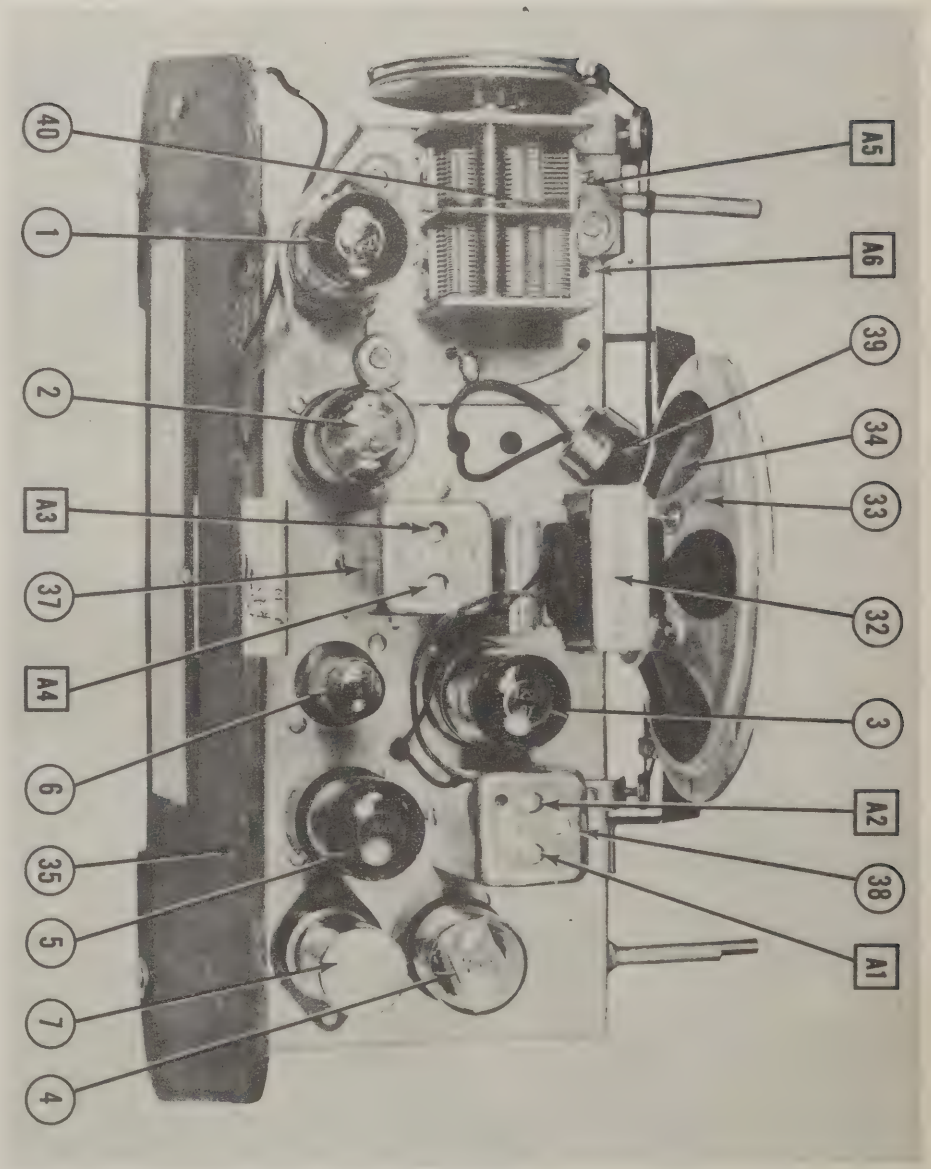
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	IRC PART No.	IDENTIFICATION CODES
21	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
22	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid
23	33KΩ	½		BTS-33K	Or.-Or.-Or. Oscillator Grid
24	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Bias Network
25	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	68KΩ	½		BTS-68K	Blue-Gray-Or. Diode RF Filter
27	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
28	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
29	330KΩ	½		BTS-330K	Or.-Or.-Yl. Output Grid
30	2200Ω	2		BT-2-2200	Red-Red-Red Filter
31	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR KING PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
32	3200Ω	3.2Ω	170Ω	.7Ω	Part of 5876	A-3870*	T22S40*	A-2028*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIR KING PART No.	JENSEN PART No.		INSTALLATION NOTES
33	FIELD PM	VC IMP. 3.2Ω	5676	ST-105† Mod. P5-X		†Fabricate new mounting bracket.
34	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

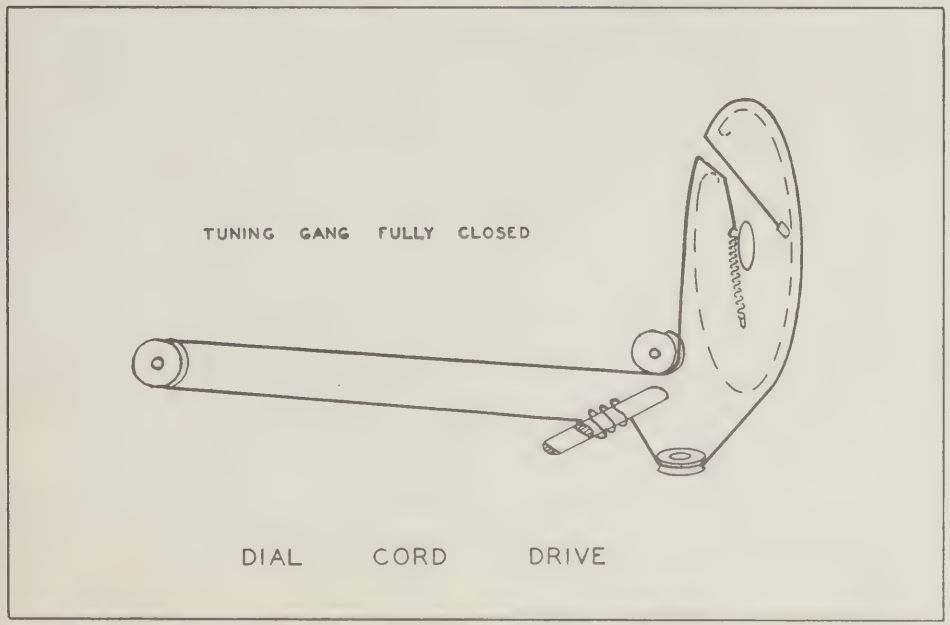
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIR KING PART No.	MEISSNER PART No.
35	Loop Ant.	.1Ω	2.5Ω	28179	
36	Osc. Coil		9Ω	28184	14-1040
37	Input IF	22Ω	22Ω	3371	16-6658
38	Output IF	31Ω	31Ω	3535	16-6660

DIAL LIGHT

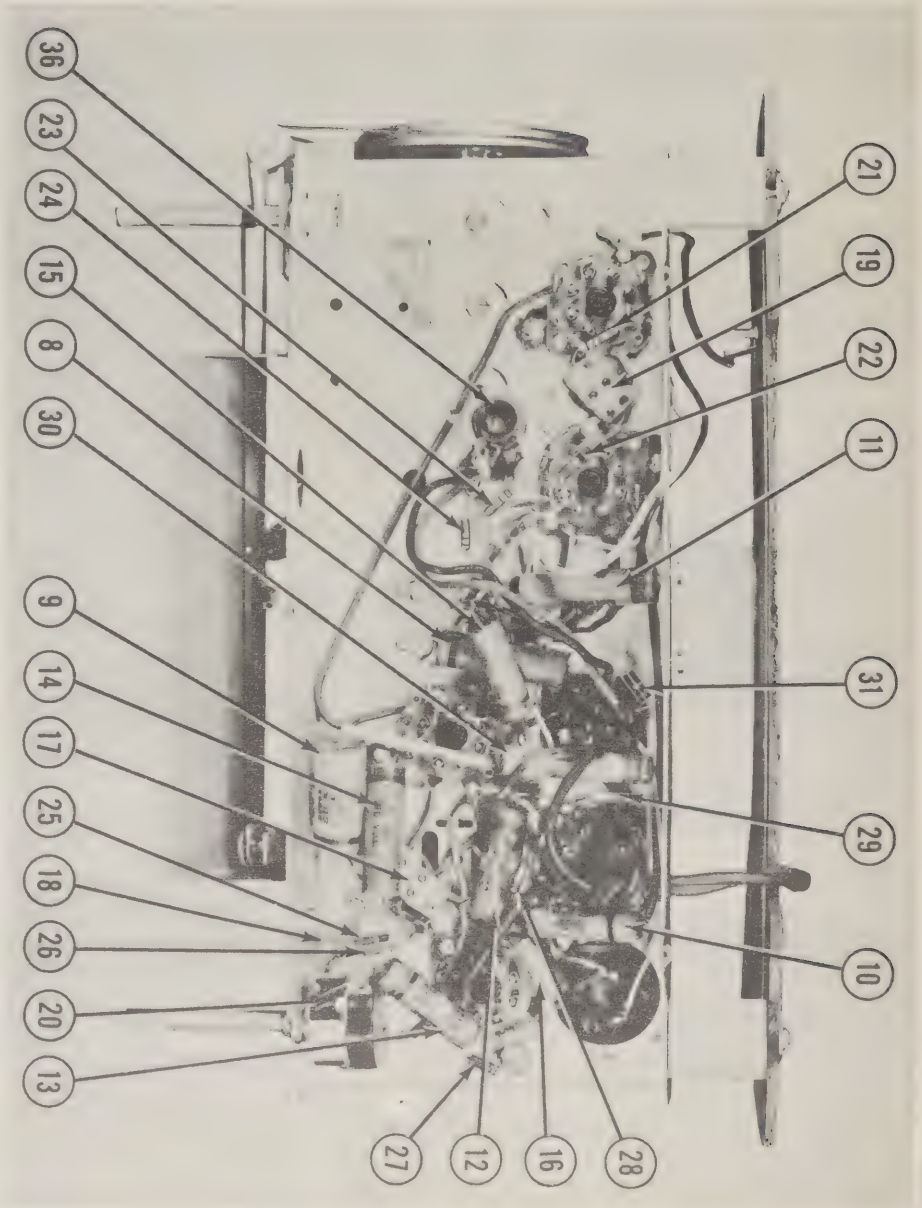
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: AIR KING PART No.		INSTALLATION NOTES
39	Bayonet	6-8	0.15	Brown			Type 47

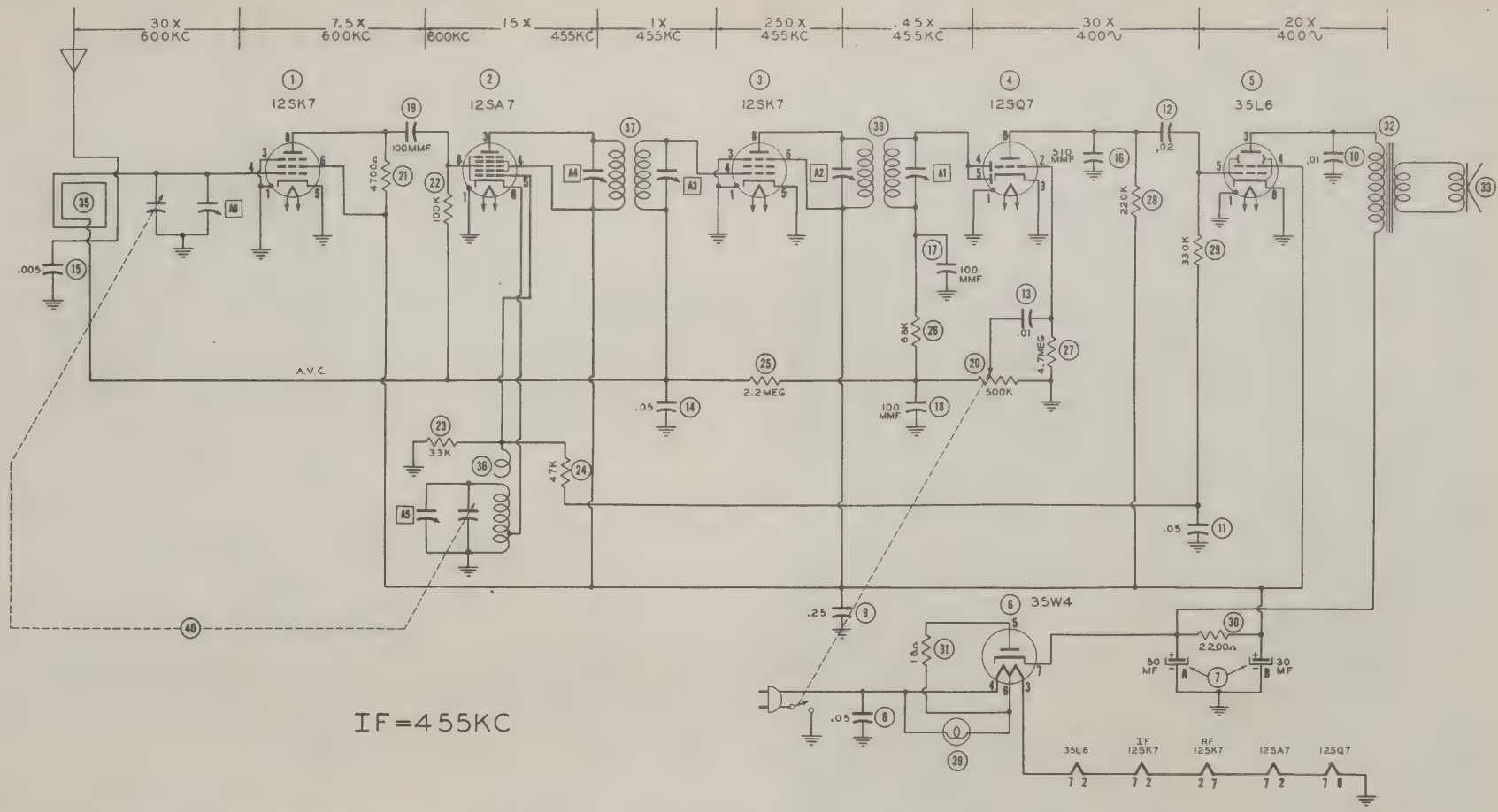
MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
40	2 Gang Var. Cap.	1672	27-472MMF, 23-140MF



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	38VAC	0V.	-.7VDC	0V.	62VDC	26VAC	39VDC
2	12SA7GT	0V.	13VAC	62VDC	62VDC	-3.1VDC§	0V.	26VAC	-.7VDC
3	12SK7GT	0V.	38VAC	0V.	-.7VDC	0V.	62VDC	50VAC	62VDC
4	12SQ7GT	0V.	-.8VDC	0V.	-.6VDC	-.6VDC	43VDC	13VAC	0V.
5	35L6GT	0V.	50VAC	110VDC	62VDC	-.9VDC	-2.2VDC	85VAC	0V.
6	35W4	0V.	0V.	85VAC	117VAC	111VAC	112VAC	116VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	39Ω	0Ω	2.6 Meg.	0Ω	56KΩ	26Ω	55KΩ
2	12SA7GT	0Ω	13Ω	56KΩ	50KΩ	39KΩ	.4Ω	26Ω	2.7 Meg.
3	12SK7GT	0Ω	39Ω	0Ω	2.6 Meg.	0Ω	50KΩ	53Ω	50KΩ
4	12SQ7GT	0Ω	4 Meg.	0Ω	570KΩ	570KΩ	47KΩ	13Ω	0Ω
5	35L6GT	0Ω	53Ω	56KΩ	50KΩ	410KΩ	80KΩ	95Ω	0Ω
6	35W4	INF.	INF.	85Ω	115Ω	130Ω	112Ω	50KΩ	-

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

AIRLINE MODEL
74WG-2002A

AIRLINE MODEL
74WG-2002A

AIRLINE MODEL 74WG-2002A

TRADE NAME	Airline, Model 74WG-2002A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SF7 IF Amp.-Det.-AVC, 12SJ7 AF Amp., 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1600KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to second mark from right end of diffuser strip. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin #2 (grid) of 12SF7. Low side to B-.	455KC	Tuning capacitor fully open.	Across voice coil	A1,A2,	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	.1 MFD.	High side to Pin #8 (grid) of 12SA7. Low side to B-.	455KC	"	"	A3,A4	Adjust for maximum output.
3	.1 MFD.	"	1620KC	"	"	A5,	" " " "
4	50 MMF.	High side to ext. ant. clip. Low side to chassis.	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET 26 FOLDER #4716-4

PARTS LIST AND DESCRIPTIONS

AIRLINE MODEL 74WG-3002A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.-Det.-AVC	12SF7	12SF7	7AZ	
4	AF Amp.	12SJ7	12SJ7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	53X345	FP211	DSB-304	TA530	PRSA150-40-40	EZ5515	Filter - Red
B	50	150							" - Grn.
C	20	25			M-10-25	TA-25	PRS25-25	BR202A	Cathode Bypass-Yl.
8	.2	400	B67204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
9	.1	400	B67104	TP428	MPW-4-1	TC-1	484-.1	DT4P1	Line Bypass
10	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	Output Plate Bypass
11	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
12	.025	200	B67253	TP451	S-4-02	TC-12	484-025	DT4S25	AF Plate Decoupling
13	.1	200	B66104	TP428	S-4-1	TC-1	484-1	DT4P1	AF Screen Bypass
14	.006	200	B67602	TP409	S-6-006	TC-26	484-006	DT6D6	Audio Coupling
15	.04	200	B67403	TP435	S-4-05	TC-14	484-05	DT4S4	Tone Compensation
16	.001	200	B64102	TP404	S-6-001	TC-21	484-001	DT6D1	" "
17	.08	200	B64803	TP452	S-4-1	TC-1	484-075	DT4P1	Phono Isolation
18	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
19	.05	200	B67503	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
20	.001	400	D67102	TP404	S-6-001	TC-21	484-001	DT6D1	Ext. Ant. Isolation-†
21	470		47X467	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	AF Plate Bypass Cer.
22	47		47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Tone Compensation Cer.
23	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
24	47		47X446	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap. Cer.
25	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

†-Not used in all models.

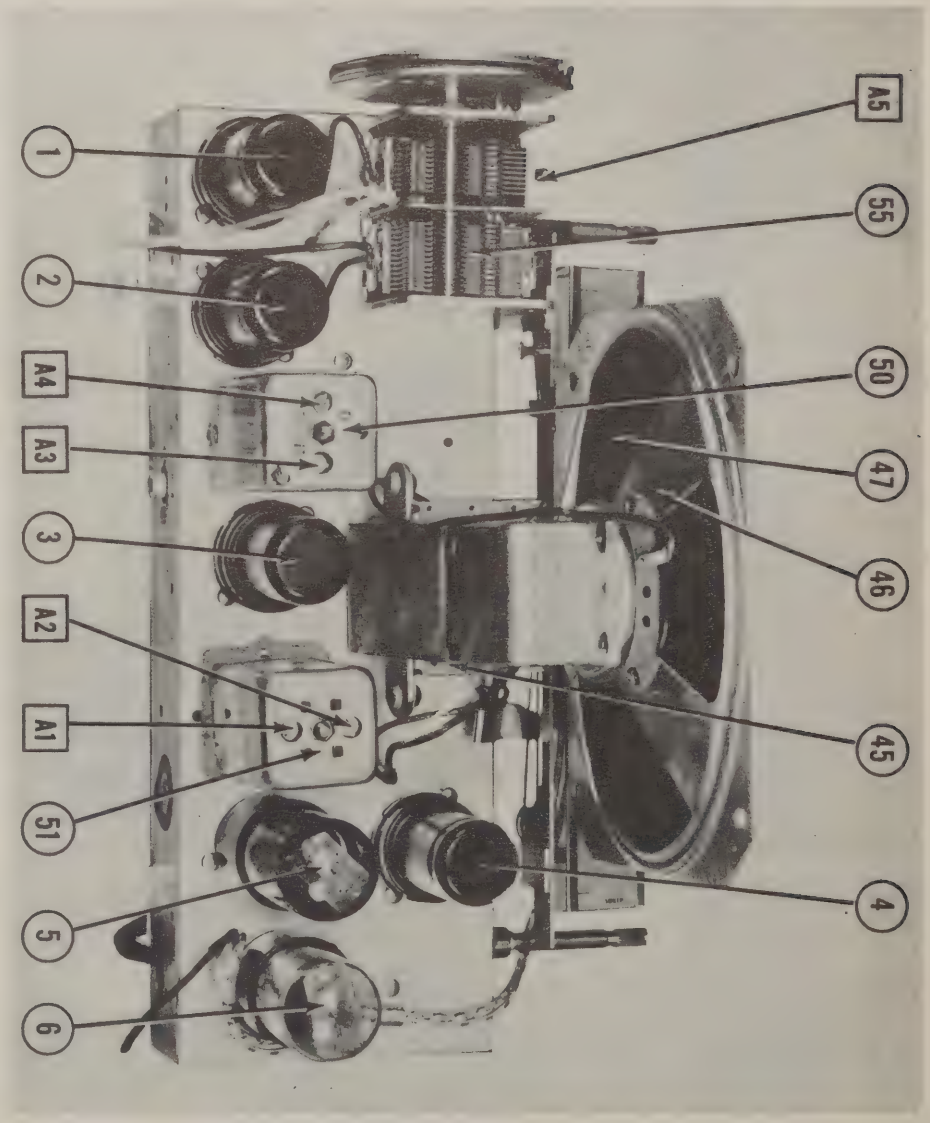
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	500KΩ	½	36X347	TM230	D13-133X	AT-92	Volume Control
B	Shaft			S825	E	KSS-3	Attach to 26A per instructions
C	Switch			M-26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
27	100KΩ	½	B85104	BTS-100K	Br.-Blk.-Yl. Converter Grid
28	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Oscillator Grid
29	470Ω	½	B85471	BTS-470	Yl.-Vi.-Br. Decoupling
30	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	100KΩ	½	B85104	BTS-100K	Br.-Blk.-Yl. Series Phono
32	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
33	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
34	4.7 Meg.	½	B85475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
35	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. AF Screen Dropping
36	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. AF Plate Load
37	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. AF Plate Decoupling
38	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	180Ω	½	B83181	BW-½-180	Br.-Gray-Br. Output Cathode
40	1500Ω	1	C84152	BTA-1500	Br.-Grn.-Red Filter
41	27Ω	2	B84279	BW-2-27	Red-Vi.-Blk. Rectifier Ballast
42	39Ω	2	D84390	BW-2-39	Or.-White-Blk. Line Dropping
43	270KΩ	½	B84274	BTS-270K	Red-Vi.-Yl. Line Isolation
44	3300Ω	½	B84332	BTS-3300	Or.-Or.-Red RF Plate Load

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
45	2600Ω	3.5Ω	350Ω	.85Ω	51X116	A-3876‡	T22S45‡	A-2928	‡Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.		
46	FIELD	VC IMP.				
	PM	3.5Ω	12A437			
47	CONE DIA.	VC DIA.				
	4"x6"	1/2"	ORDER FROM MANUFACTURER-SPECIFY PART # AND LETTERS STAMPED ON SPEAKER.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.
48	Loop	.2Ω	2.2Ω	26A461	
49	Osc. Coil	.4Ω	5.5Ω	9A-1805	
50	Input IF	22Ω	22Ω	9A-1775	16-6658
51	Output IF	21.8Ω	18.3Ω	9A-1776	16-6660

DIAL LIGHT

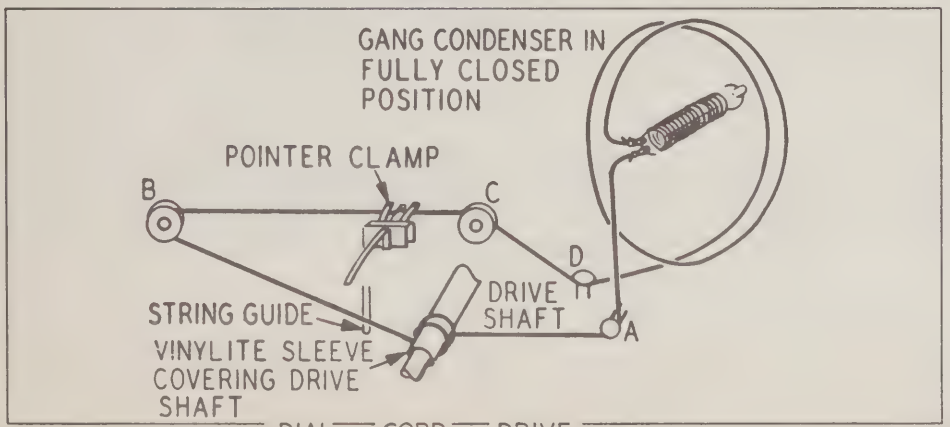
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
52	Bayonet	6-8	0.15	Brown			Type 47

PHONO CARTRIDGE

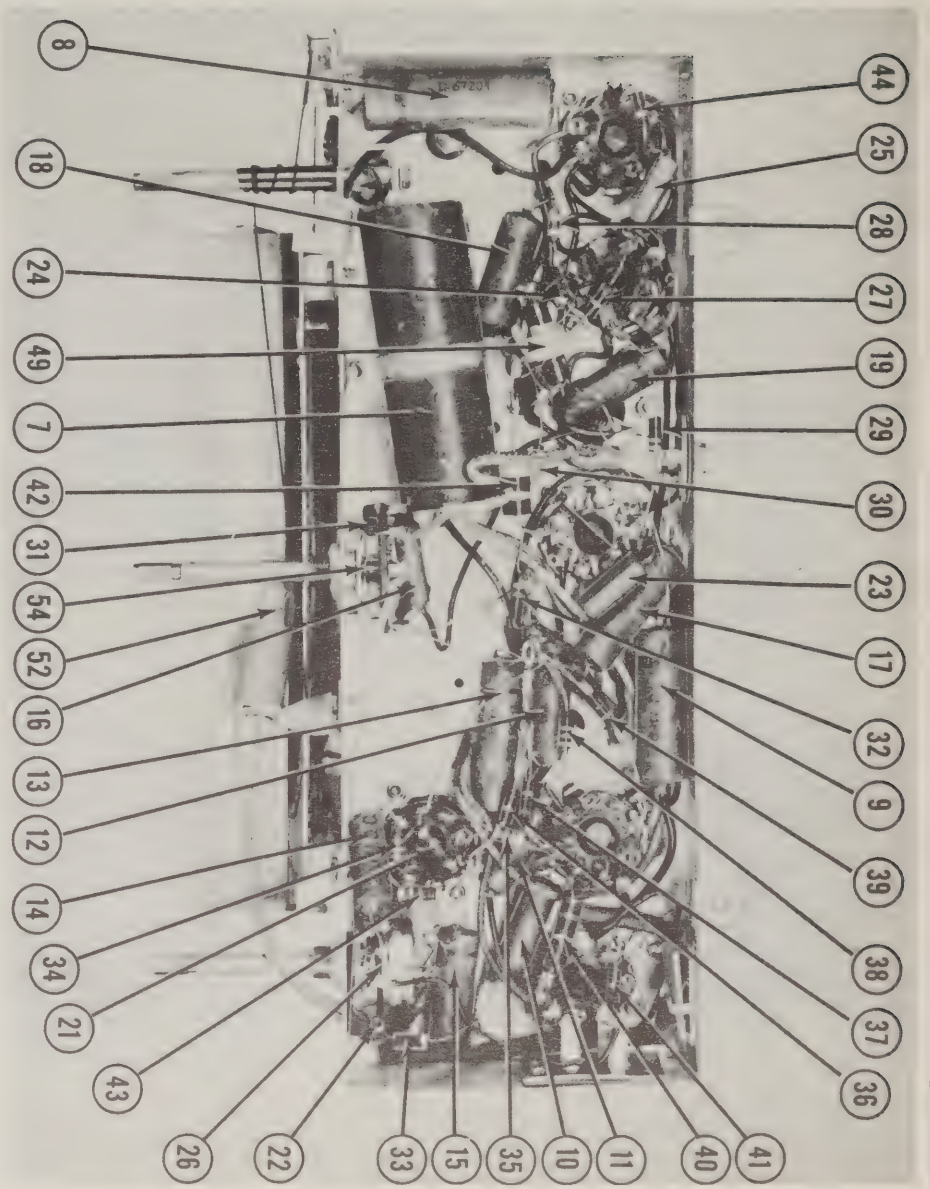
ITEM No.	REPLACEMENT DATA		REMARKS
	AIRLINE PART No.	ASTATIC PART No.	
53		L-7b-S	

MISCELLANEOUS

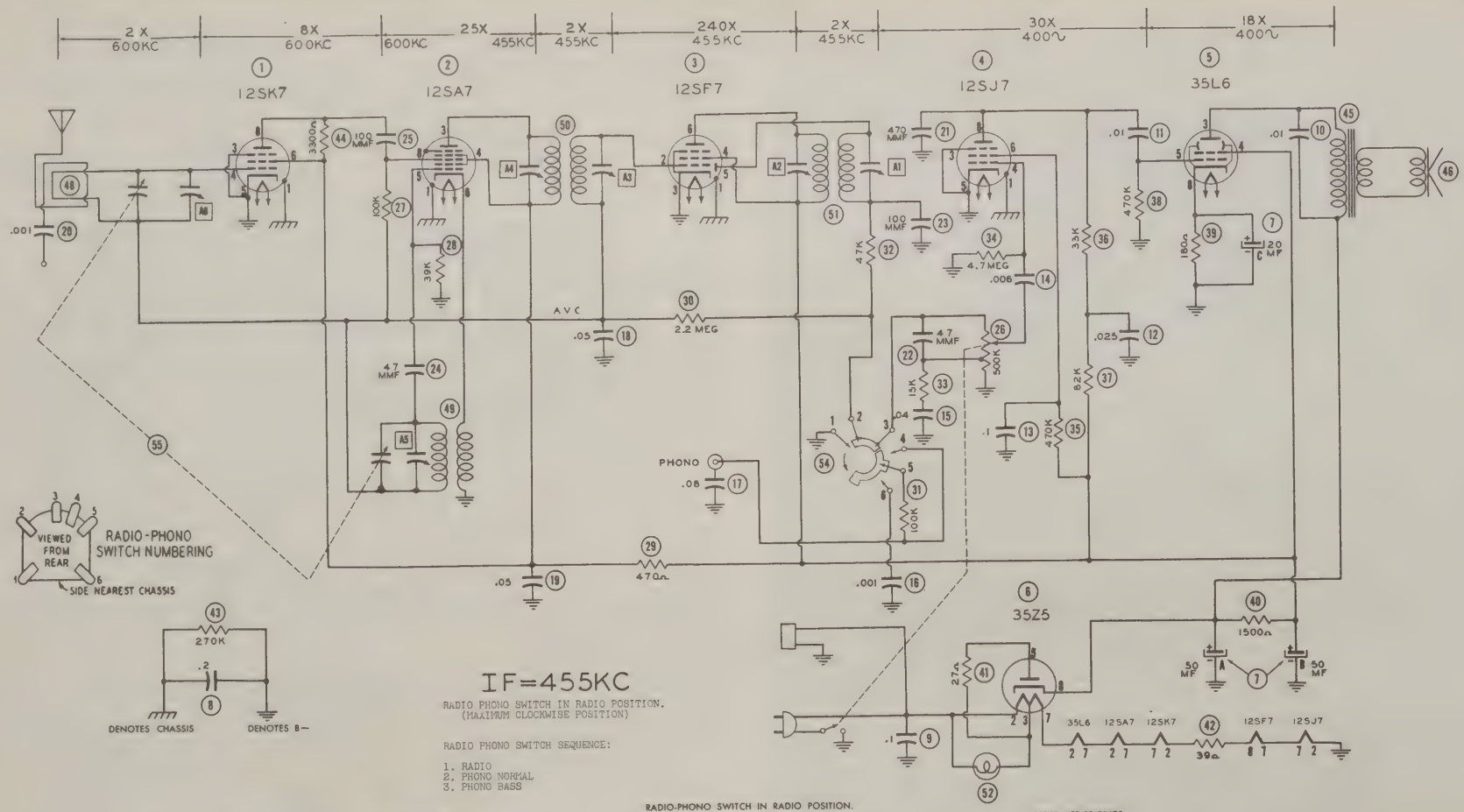
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
54	Switch	2A357	Radio-Phono
55	2 Gang Var. Cap.	26A402	34-197 MMF, 17-438 MMF
A6	Trimmer	17A123	1.5-12MMF-Ant. Adj.
	Dial	58X679	
	Pointer	15X217	



CHASSIS—BOTTOM VIEW



AIRLINE MODEL 74WG-2002A


2 X 600KC
8X 600KC
600KC 25X 455KC
2X 455KC
240X 455KC
2X 455KC
30X 400~
18X 400~
1 12SK7
2 12SA7
3 12SF7
4 12SJ7
5 35L6
6 35Z5
AVC
PHONO
.08
.05
.001
.05
.001
.025
.01
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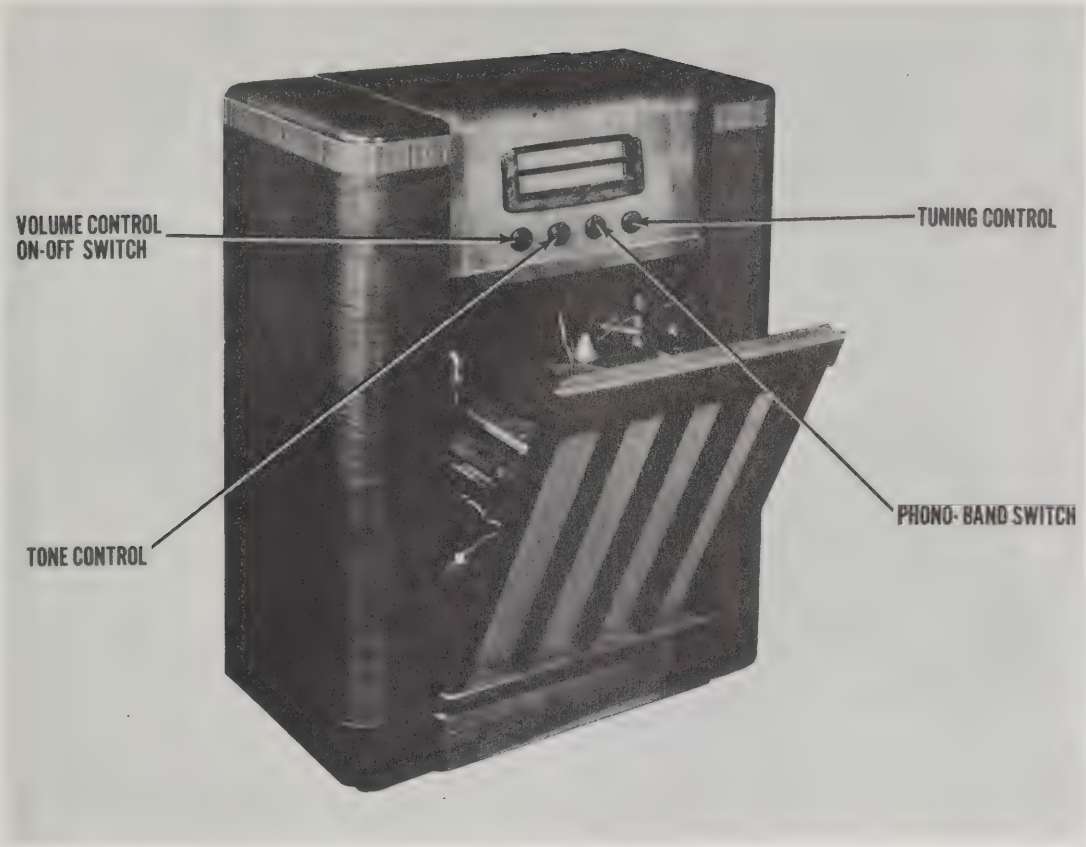

AIRLINE MODEL
74WG-2709A

AIRLINE MODEL
74WG-2709A

AIRLINE MODEL 74WG-2709A

TRADE NAME	Airline, Model 74WG-2709A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne with Loop Antenna
TUBES (SEVEN)	Types, 6SJ7 Mixer, 6J5 Oscillator, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.510 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC
SHORT WAVE	5.75-18.3MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin #4 (grid) of 6SJ7 Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	100MMF.	High side to ant. lead. Low side to chassis.	1600KC	"	"	"	A5	" " " "
3	100MMF.	"	1400KC	"	Tune for maximum output.	"	A6	" " " "
4	100MMF.	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3, and 4 until no further improvment can be made.
5	400Ω carbon res.	"	18.3MC	SW	Tuning cap. fully open.	"	A8	Adjust for maximum output.
6	"	"	17.0MC	"	Tune for maximum output.	"	A9	Rock tuning cap. and adjust for maximum output.
7	100MMF.	"	1400KC	BC	"	"	A6	With chassis reassembled in cabinet adjust for maximum output. Set pointer at 1400KC mark on dial.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 10/47 SET #26 FOLDER #4716-5

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	Mixer	6SJ7	6SJ7	8N	
2	Oscillator	6J5	6J5	6Q	
3	1st IF Amp.	6SK7	6SK7	8N	
4	2nd IF Amp.	6SK7	6SK7	8N	
5	Det.-AVC-AF	6SQ7	6SQ7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	20	450	45X277	TC75	M-20-450	UT-20	PRS450-20	BR2045	Filter - White
B	40	400		TC78	M-40-450	UT-40	PRS450-40	BR4045	" - Black
9	.003	400	D66302	TP406	S-6-003	TC-23	484-003	DT6D3	Output Plate Bypass
10	.004	200	B66402	TP407	S-6-004	TC-24	484-004	DT6D4	Tone Comp.
11	.25	200	B66254	TP430	S-4-25	TC-2	484-.25	DT4P25	Bias Filter
12	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.01	400	D66103	TP421	S-4-01	TC-11	484-01	DT4S1	" "
14	.04	400	D66403	TP425	S-6-04	TC-14	484-05	DT4S4	IF Screen Bypass
15	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	RF Bypass Pwr. Supply
16	.04	400	D66403	TP425	S-6-04	TC-14	484-05	DT4S4	Mixer Screen Bypass
17	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
18	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	Mixer Cathode Bypass
19	.0005	600	D67501	TP403	S-6-0005	TC-35	1468-0005	DT6T5	RF Coupling
20	.00475	180	46X289						Fixed Pad.
21	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	Osc. Feedback
22	220		47X468	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	AF Plate Bypass
23A	50	300	47X112	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Diode Filter
B	50	300		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	" "
24	47		47X463	MCB225	MOS.5-45	MS-45	1469-00005	5R5Q5	Osc. Grid
25	20		47X482		MOS.5-42	MS-42		5R5Q2	Fixed Trimmer
26	7		47X182						Osc. Coupling
27	10		47X477	MCB215	MOS.5-41	MS-41	1469-00001	5R5Q1	IF Coupling

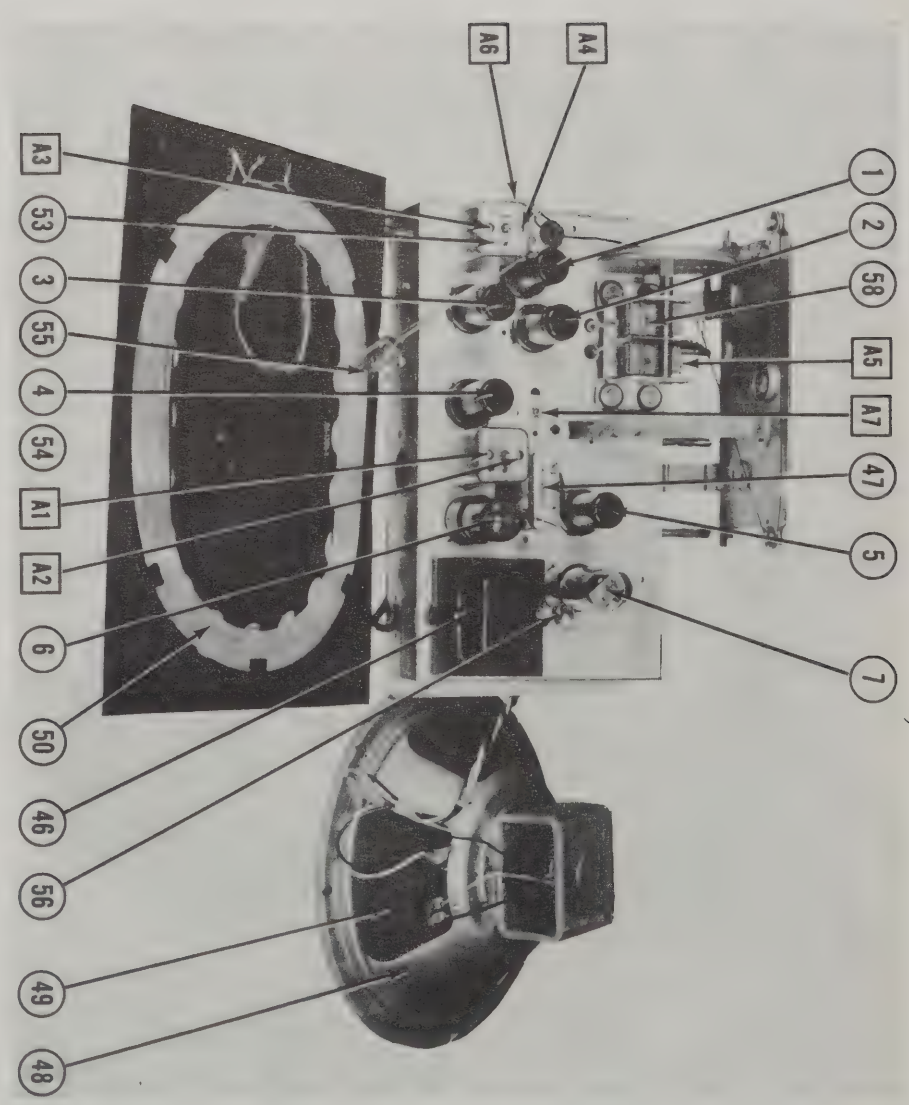
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500KΩ	½	36X311	MK401	D13-133	AM-60-Z	Volume control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 28A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
29A	5 Meg.	½	40X259B			AM-50-Z	Tone Control
B	Shaft		Not Req.			KSS-3	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
30	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. Mixer Grid
31	2200Ω	½	B84222	BTS-2200	Red-Red-Red Mixer Cathode
32	10KΩ	1	C84103	BTA-10K	Br.-Blk.-Or. Oscillator Plate Load
33	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Oscillator Grid
34	68KΩ	½	B84683	BTS-68K	Blue-Gray-Or. Mixer Screen Dropping
35	2700Ω	½	B84272	BTS-2700	Red-Vi.-Red IF Plate Load
36	1 Meg.	½	B85105	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
37	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
38	39KΩ	1	B84393	BTA-39K	Or.-White-Or. IF Screen Dropping
39	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
40	4.7 Meg.	½	B85475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
41	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
42	330KΩ	½	B85334	BTS-330K	Or.-Or.-Yl. Output Grid
43	91KΩ	½	B83913	BTS-82K	White-Br.-Or. Bias Network
44	620KΩ	½	B83624	BTS-680K	Blue-Red-Yl. Bias Network
45	220Ω	½	B85221	BW-½-220	Red-Red-Br. Decoupling

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
46	117V AC @ .51A	610V CT @ .062A	5.1V AC @ 1.8A	6.4V AC @ 2.25A	53X235	P-6011*	T22R02*	P-2951†

*Use universal mounting brackets. †Drill one new mounting hole.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
47	7400Ω	4.0Ω	440Ω	.7Ω	51X97A	A-3823	T22S46†	A-2901	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	AIRLINE PART No.	JENSEN PART No.		
48	1500Ω	4.0Ω	12A455	ST-175 Mod. F10-S		
	CONE DIA.	VC DIA.				
49	9½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

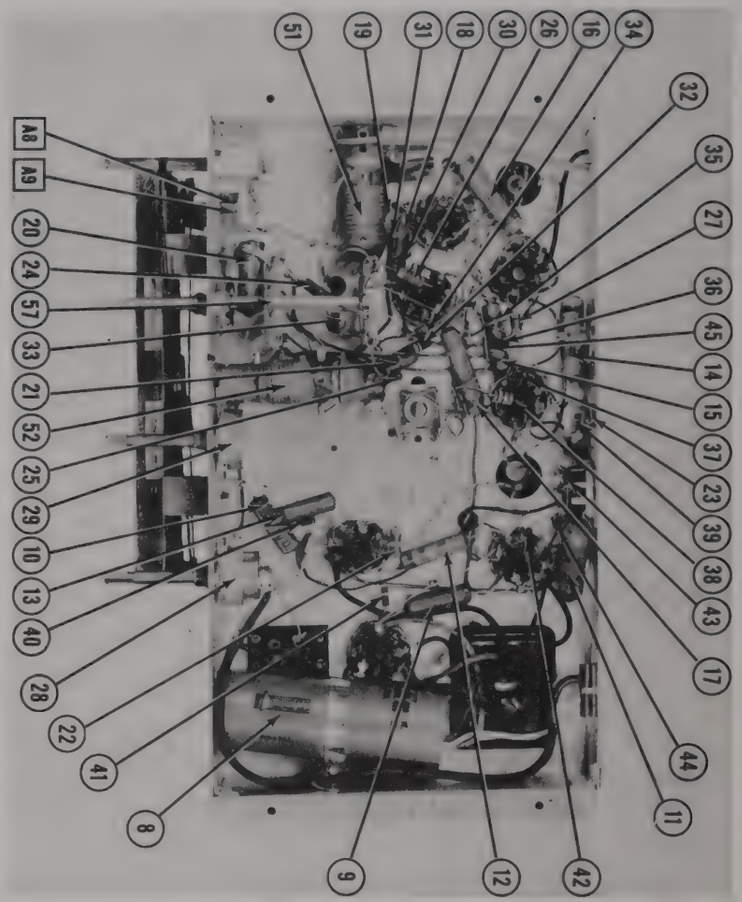
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
50	Loop Ant.	.1Ω	3Ω	9A1395		
51	SW Ant. Coil	.5Ω	0Ω	9A1451	14-1044	
52A	BC Osc. Coil	.7Ω	2.5Ω	9A1452		Items 52A & 52B wound on same form
B	SW Osc. Coil	.1Ω	0Ω			
53	Input IF	21.3Ω	21.8Ω	9A1810	16-6658	
54	Output IF	21Ω	18Ω	9A1811	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
55	Bayonet	7.5	0.2	White			Type 51
56	"	"	"	"			"

CHASSIS—BOTTOM VIEW



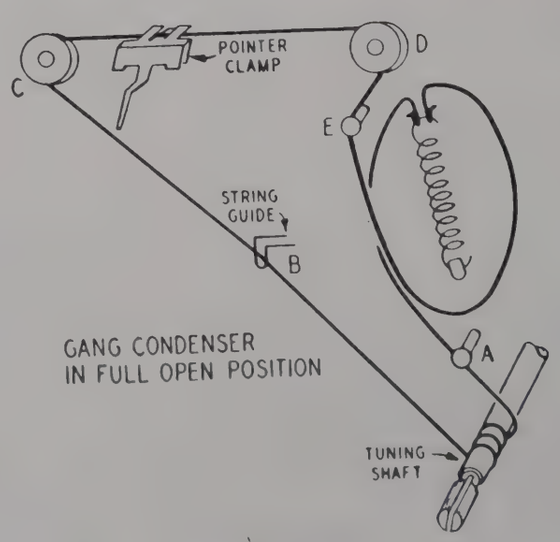
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
57	Switch	2A177	Band & Phono
58	2 Gang Var. Cap.	14A150	(16-455MMF, 22-421 MMF)
A6	Trimmer Cap.	17A149	(1.8-12 MMF) BC Ant. Adj.
A8	Dual Trimmer	17A163	(2-25 MMF) SW Osc. Adj.
A9			" SW Ant. Adj.
	Dial Scale	58X593	Glass
	Pointer	15X225	
	Knob	10A530	(volume)
	"	10A531	(tuning)
	"	10A532	(tone)
	"	10A533	(band change)

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove speaker plug from chassis.
3. Remove phono-motor plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Remove ground foil lead from chassis.
6. Remove loop antenna leads from loop.
7. Remove two dial lights from brackets.
8. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.
10. Remove brads from loop. Remove loop from cabinet.



DRIVE DIAGRAM

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0V.	0V.	0V.	0V.	6.2VDC	167VDC	6.4VAC	215VDC
2	6J5	0V.	0V.	137VDC	167VDC	-18VDC§	137VDC	6.4VAC	0V.
3	6SK7	0V.	0V.	0V.	-.5VDC	0V.	70VDC	6.4VAC	192VDC
4	6SK7	0V.	0V.	0V.	-.2VDC	0V.	70VDC	6.4VAC	215VDC
5	6SQ7	0V.	-.6VDC	0V.	-.5VDC	-.5VDC	80VDC	0V.	6.4VAC
6	6V6GT	0V.	0V.	200VDC	215VDC	-5VDC	0V.	6.4VAC	0V.
7	5Y3GT	0V.	215VDC	0V.	310VAC	0V.	310VAC	0V.	215VDC

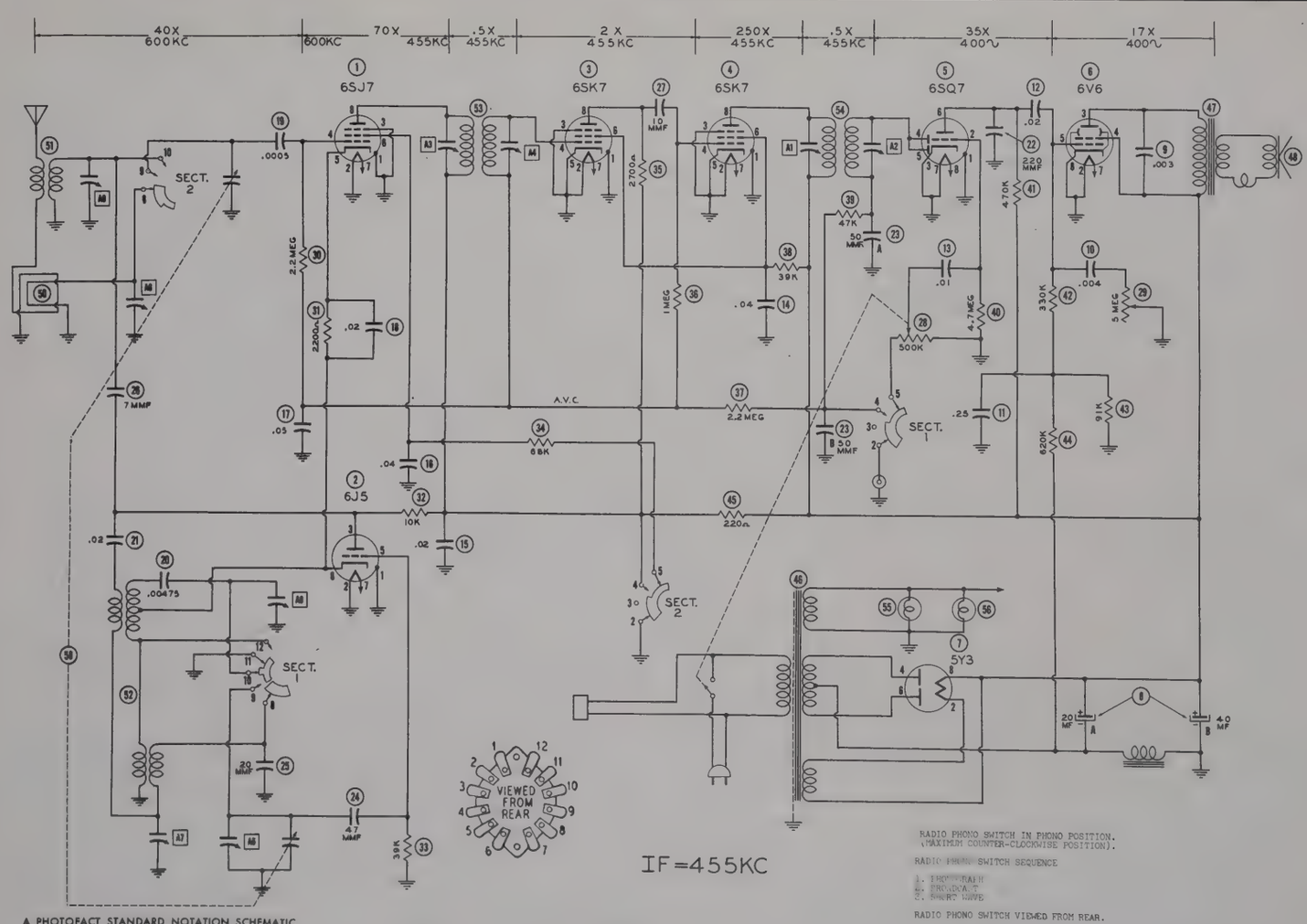
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	0Ω	0Ω	5 Meg.	2.2KΩ	160KΩ	.1Ω	90KΩ
2	6J5	0Ω	0Ω	100KΩ	160KΩ	38KΩ	100KΩ	.1Ω	.7Ω
3	6SK7	0Ω	0Ω	0Ω	2.7 Meg.	0Ω	130KΩ	.1Ω	93KΩ
4	6SK7	0Ω	0Ω	0Ω	3.5 Meg.	0Ω	130KΩ	.1Ω	90KΩ
5	6SQ7	0Ω	4.6 Meg.	0Ω	550KΩ	550KΩ	560KΩ	0Ω	.1Ω
6	6V6GT	0Ω	0Ω	90KΩ	90KΩ	410KΩ	INF.	.1Ω	0Ω
7	5Y3GT	0Ω	90KΩ	INF.	1.6KΩ	INF.	1.6KΩ	INF.	90KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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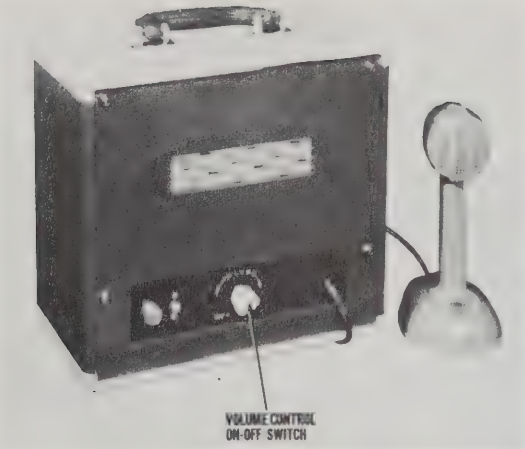
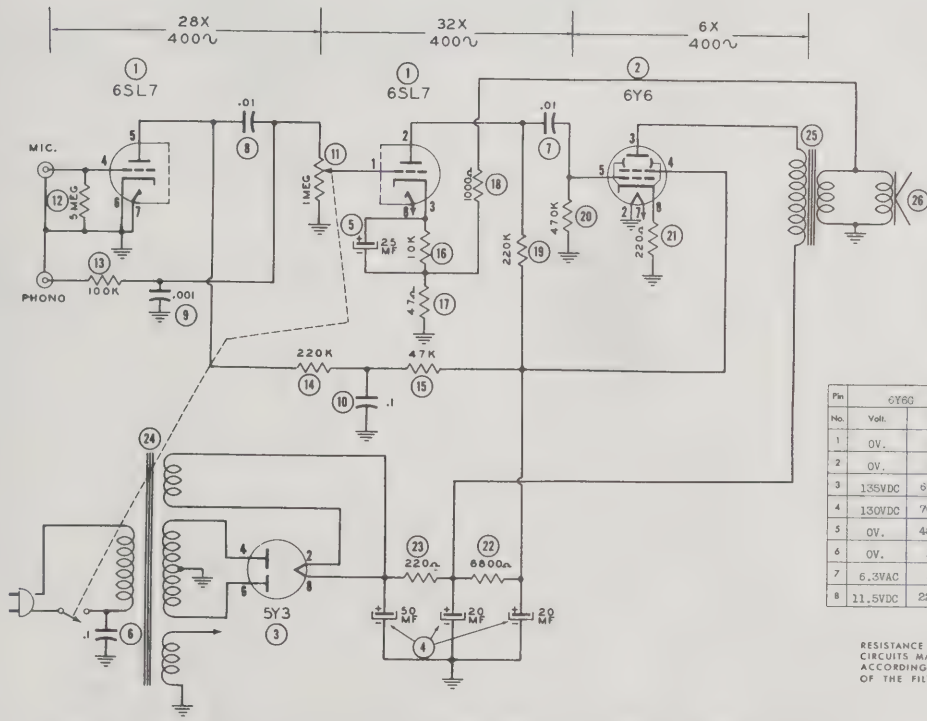
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



AUDAR MODEL MAS-4

TRADE NAME	Audar Model MAS-4 ("Bingo Amplifier")
MANUFACTURER	Audar, Inc., Argos, Indiana
TYPE SET	AC Operated 2 Channel Amplifier with Speaker
TUBES (THREE)	Types, 6SL7GT AF Amp., 6Y6G Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .370 Amp. @ 117 Volts AC



Pin No.	6SL7GT Volt.	6SL7GT Res.
1	0V.	1.2 MEG.
2	87VDC	280KΩ
3	1.5VDC	10KΩ
4	0V.	0Ω
5	15VDC	330KΩ
6	0V.	0Ω
7	0V.	0Ω
8	6.3VAC	.1Ω

Pin No.	6Y6G Volt.	6Y6G Res.	5Y3GT Volt.	5Y3GT Res.
1	0V.	INF.	0V.	INF.
2	0V.	0Ω	165VDC	60KΩ
3	135VDC	60KΩ	6.5VAC	.1Ω
4	130VDC	70KΩ	170VAC	100Ω
5	0V.	480K	0V.	INF.
6	0V.	INF.	170VAC	110Ω
7	6.3VAC	.1Ω	0V.	INF.
8	11.5VDC	220Ω	165VDC	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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4716-6

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DATE 10/47 SET #26 FOLDER #4716-6

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUDAR PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Pre-Amp. Audio		6SL7GT	9BD	
2	Power Output		6Y6G	7AC	
3	Rectifier		5Y3GT	8T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUDAR PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	50	150		E242215	TN129	DSR-408020-150	TA-530 UT-201	PRSA150-50-30 PRS150-20	Filter - Red " - White " - "
5	25	25		BR252A	TC26	M-25-25	TA-25	PRS25-25	Cathode Bypass
6	.1	400		DT4P1	TP428	MPH-4-1	TC-1	484-.1	Line Filter
7	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
8	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	" "
9	.001	600		DT6D1	TP404	S-6-001	TC-21	684-001	Tone Compensation
10	.1	400		DT4P1	TP428	S-4-1	TC-1	484-.1	Pre-amp. Plate Decoup.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUDAR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
11A	1 Meg.	½		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 11A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUDAR PART No.	IRC PART No.	IDENTIFICATION CODES
12	5 Meg.	½		BTS-4.7 Meg.	Brn.-Blk.-Grn. Pre-Amp. Grid
13	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Series Phono
14	220KΩ	½		BTS-220K	Red-Red-Yl. Pre-Amp. Plate Load
15	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Voltage Dropping
16	10KΩ	½		BTS-10K	Br.-Blk.-Or. AF Cathode
17	47Ω	1		BW-1-47	Yl.-Vi.-Blk. AF Cathode
18	1000Ω	½		BTS-1000	Br.-Blk.-Red Feedback
19	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
20	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
21	220Ω	1		BW-1-220	Red-Red-Br. Output Cathode
22	6800Ω	½		BTS-6800	Blue-Gray-Red Filter
23	220Ω	1		BW-1-220	Red-Red-Br. Filter

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AUDAR PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
24	117VAC @ .37A	340VCT @ .056A	4.3VAC @ 2A.	6.3VAC @ 1.6A		P-6289†#		

†Use universal mounting brackets. #Add series resistor to reduce plate voltage.

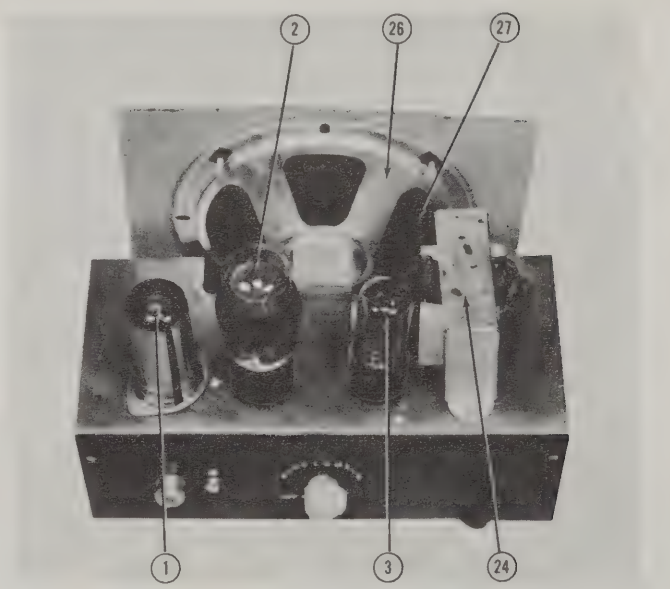
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUDAR PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
25	5000Ω	3.5Ω	340Ω	.7Ω		A-3870	T22545	A-2928	

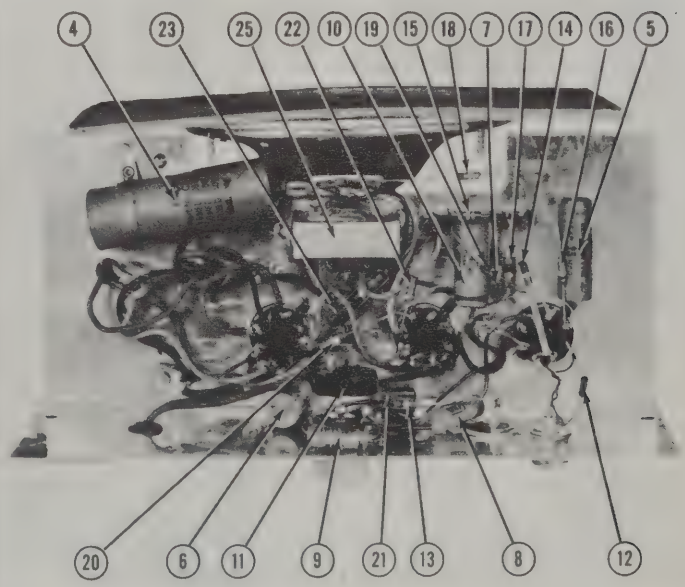
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AUDAR PART No.	JENSEN PART No.		INSTALLATION NOTES
26	FIELD PM	VC IMP. 3.8Ω	-	ST-108‡ Mod. P6-X		‡Fabricate new mounting bracket.
27	CONE DIA. 6"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



AUTOMATIC TOM THUMB JR.
BATTERY OPERATED

AUTOMATIC TOM THUMB JR.
BATTERY OPERATED

AUTOMATIC MODEL TOM THUMB, JR.

TRADE NAME	Automatic, Model Tom Thumb, Jr.
MANUFACTURER	Automatic Radio Manufacturing Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES(FIVE)	Types, 1R5 Converter, 1T4 1st IF Amp., 1T4 2nd IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY RATING	1½ Volt "A" Supply & 67½ Volt "B" Supply 290MA @ 1.5 Volts DC & 9 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	538-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET 26 FOLDER #4716-7

PARTS LIST AND DESCRIPTIONS

AUTOMATIC TOM THUMB JR.
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3S4	3S4	7Ba	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	20	150	VEC-3	TC45	M-20-150	UT-201	PRSA150-20	BR2015	Pwr. Supply Bypass
7	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
8	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
9	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	" "
10	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
11	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
12	100			MC235	M0.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
13	200			MC237	M0.5-32	1FM-32	1468-0002	5W5T2	Diode Filter
14	500	500		MC245	M0.5-35	1FM-35	1468-0005	5W5T5	IF Coupling
15	100			MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid
38	.01			TP421	S-4-01	TC-11	484-01	DT4S1	Screen Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16	750KΩ	½					Volume Control & Sw.

RESISTORS

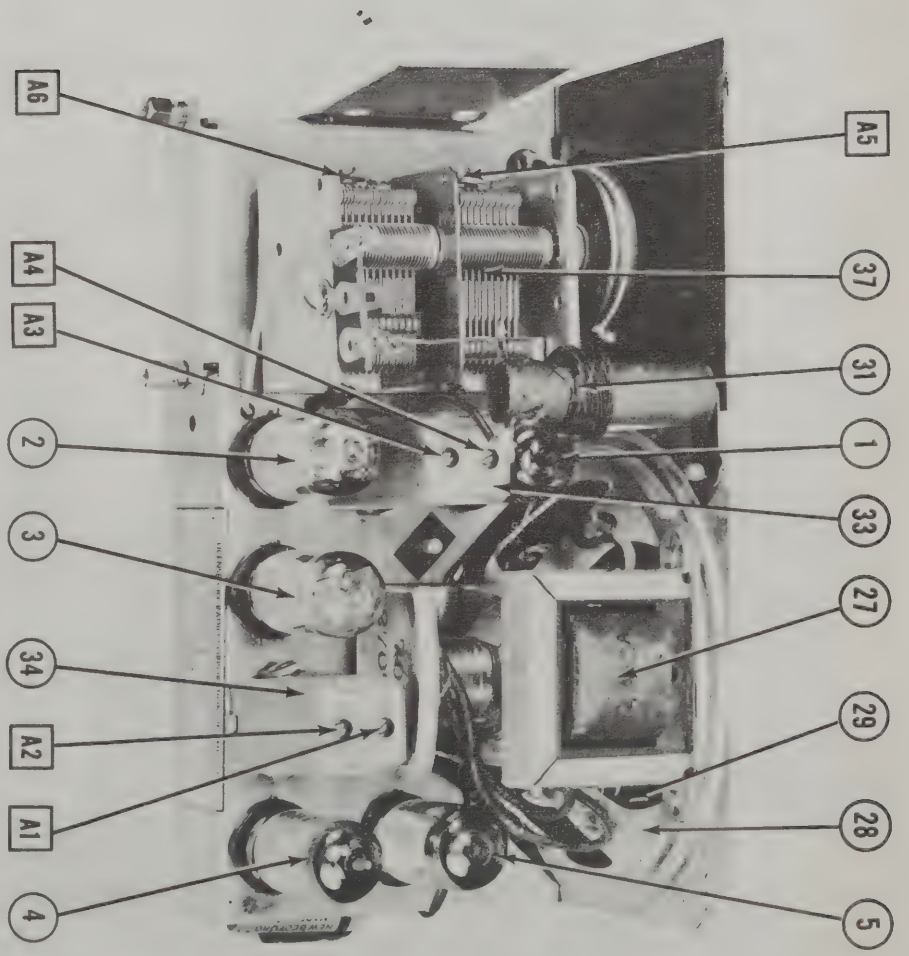
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
17	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
18	12KΩ	½		BTS-12K	Br.-Red-Or. Screen Dropping-See Note 1
19	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
20	20KΩ	½		BTS-22K	Red-Blk.-Or. IF Plate Load
21	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. IF Grid
22	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid-See Note 2
23	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Screen Dropping
24	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
25	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. Output Grid
26	600Ω	½		BTS-560	Blue-Blk.-Br. Bias

Note 1-Some models use 7500Ω in this application.
Note 2-Some models use 10 Meg. in this application.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
27	5000Ω	4.3Ω	440Ω	1Ω	Part of PM-703	A-3877	T22S46	A-2830	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	AUTOMATIC PART No.	JENSEN PART No.		
28	PM	4.3Ω	PM-703	ST-113 Mod. P4-X		
	CONE DIA.	VC DIA.				
29	4"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

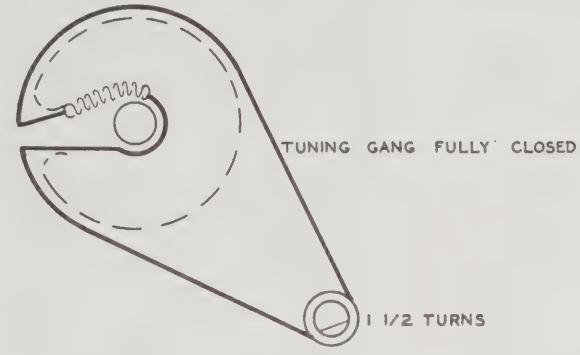
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	
30	Loop Ant.		1Ω			
31	Loop Loading Coil		1Ω			
32	Osc. Coil	1Ω	5.5Ω		14-1040	
33	Input IF	33Ω	33Ω	A575A	16-6668	
34	Output IF	33Ω	33Ω	A575A	16-6669	

BATTERIES

ITEM No.	VOLTAGE	AUTOMATIC PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
35	1½V "A"		(2)#935			2 Used in Parallel
36	67½V "B"			#467		

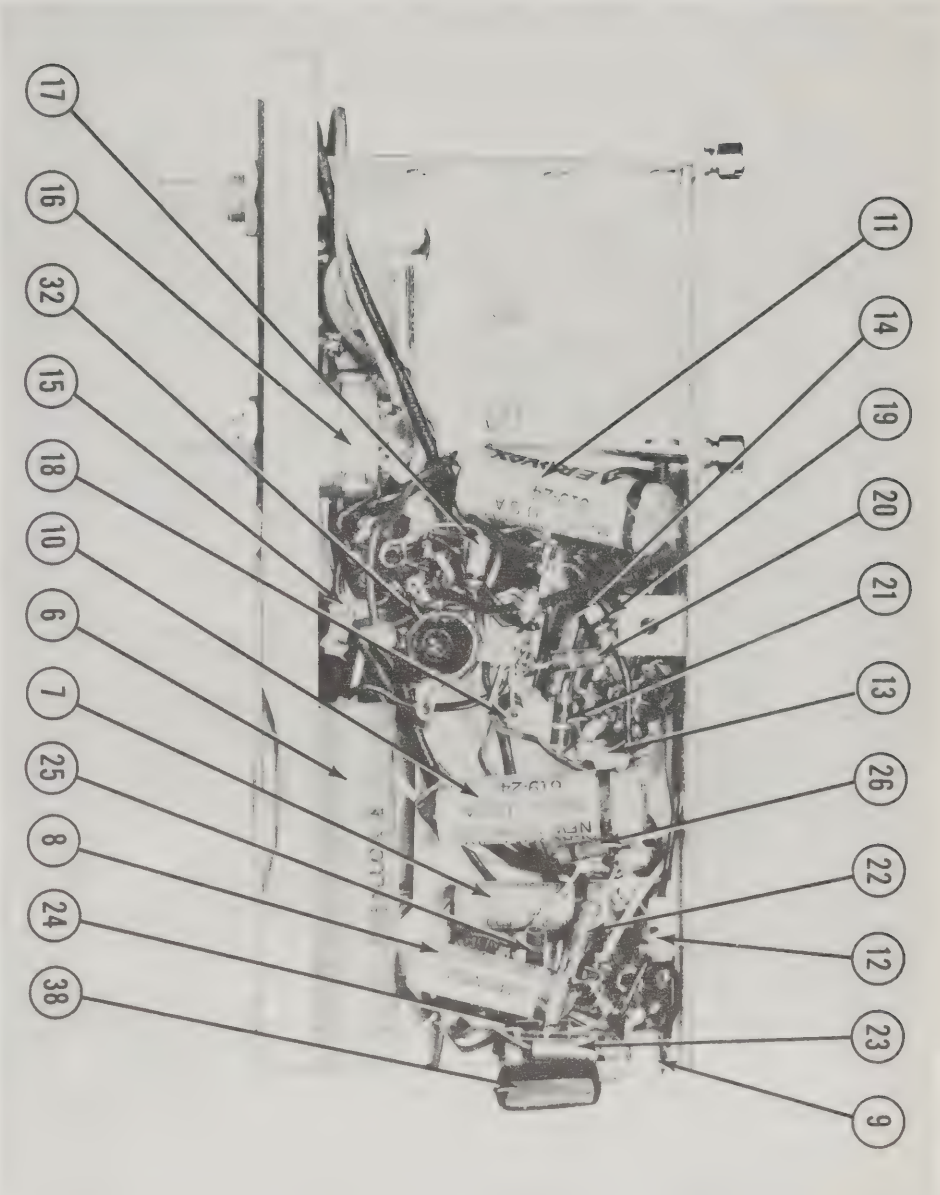
MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
37	2 Gang Var. Cap.		31-405MMF, 31-202MMF



DIAL CORD DRIVE

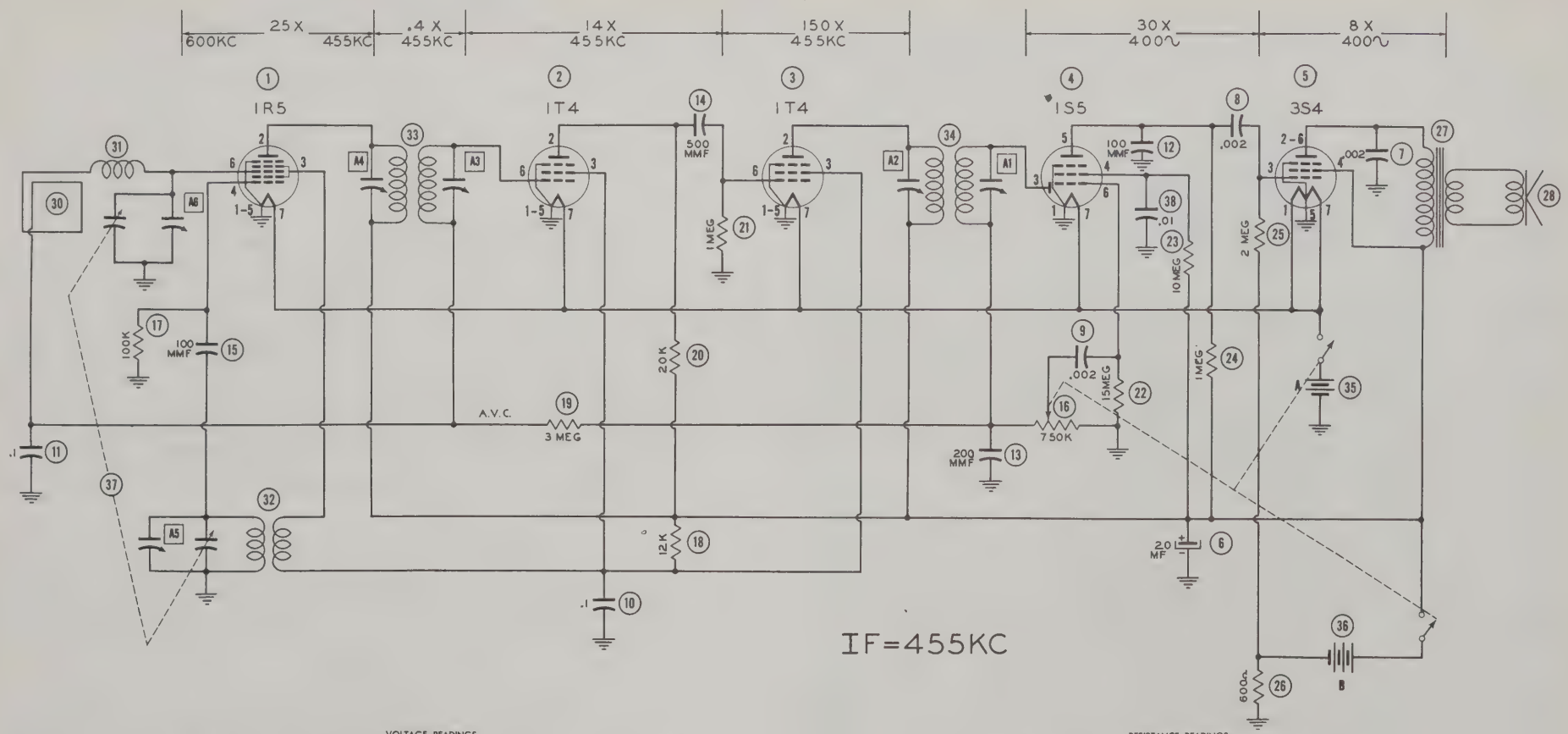
CHASSIS—BOTTOM VIEW



AUTOMATIC TOM THUMB JR.
BATTERY OPERATED

DATE 10/47 SET 26 FOLDER #471-

AUTOMATIC TOM THUMB JR.
BATTERY OPERATED



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	58VDC	33VDC	-4.4VDC§	0V.	-.1VDC	1.4VDC
2	1T4	0V.	45VDC	33VDC	0V.	0V.	-.1VDC	1.4VDC
3	1T4	0V.	58VDC	33VDC	-.2VDC	0V.	0V.	1.4VDC
4	1S5	0V.	-2VDC	-.2VDC	15VDC	27VDC	-.1VDC	1.4VDC
5	3S4	1.4VDC	55VDC	-.9VDC	58VDC	0V.	55VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	50KΩ	62KΩ	100KΩ	0Ω	3.5 Meg.	*
2	1T4	0Ω	70KΩ	62KΩ	INF.	0Ω	3.5 Meg.	*
3	1T4	0Ω	50KΩ	62KΩ	750KΩ	0Ω	1 Meg.	*
4	1S5	0Ω	750KΩ	750KΩ	10 Meg.	1 Meg.	15 Meg.	*
5	3S4	*	50KΩ	2 Meg.	50KΩ	0Ω	50KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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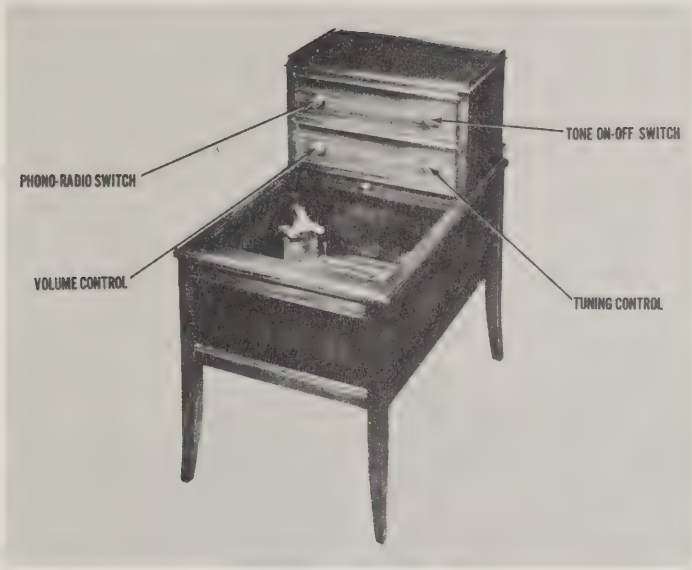
4716-7

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.



BENDIX
MODEL 697A

BENDIX
MODEL 697A

BENDIX MODEL 697A

TRADE NAME	Bendix, Model 697A
MANUFACTURER	Bendix Radio Div. of Bendix Aviation Corp., Baltimore, Md.
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna
TUBES (SIX)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 12BA6 Inverter, (2) 35B5 Power Output.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .360 Amp. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The reference marks referred to are stamped on the dial backplate. To set pointer turn tuning capacitor fully closed and set right edge of pointer saddle to vertical mark at the left end of dial backplate. The trimmer on the oscillator section opposite A5 is pre-set at the factory and normally need not be adjusted. If, however, the receiver will not calibrate by adjusting A5 this trimmer may also be adjusted. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	50MMFD.	High side to ext. ant. lead. Low side to chassis.	1475KC	1475KC reference mark. (1st mark from right end of dial backplate)	"	A5	Adjust for maximum output.
3	50MMFD.	"	965KC	Tune for maximum output.	"		Check calibration. Pointer should be within limits inscribed on backplate.
4	50MMFD.	"	580KC	"	"		Check calibration. Pointer should be within limits inscribed on backplate. If calibration is not within limits in Step 3 & 4 oscillator and antenna gang rotor sections must be bent.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six wood screws holding panel to back of cabinet.
3. Unsolder leads from loop and remove panel from cabinet.
4. Remove two wood screws holding dial slide assembly to cabinet.
5. Remove four wood screws holding chassis mounting board in cabinet. Slide chassis and mounting board out back of cabinet.
6. Remove three hex head screws holding chassis to mounting board. Remove chassis from mounting board.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

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DATE 10/47 SET 26 FOLDER #4716-8

PARTS LIST AND DESCRIPTIONS

BENDIX
MODEL 697A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Inverter	12BA6	12BA6	7BK	
5	Power Output	35B5	35B5	7BZ	
6	" "	35B5	35B5	7BZ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BENDIX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	CE3F00	2N511	DSB-2x40-150	TA-440	PRSA150-40-40	EZ5515C†	Filter - Blue
B	40	150							" - Red
C	40	150		TC48	M-40-150	UT-401	PRS150-40		" - Green
8	.05	400	CP4T40	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.006	400	CP4T20	TP409	S-6-006	TC-26	484-006	DT6D6	Output Plate Bypass
10	.04	400	CP4T38	TP425	S-6-04	TC-14	484-03	DT4S4	Tone Compensation
11	.25	200	CP2T60	TP430	S-4-25	TC-2	484-.25	DT4P25	Feedback
12	.01	400	CP4T31	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
13	.006	400	CP4T20	TP409	S-6-006	TC-26	484-006	DT6D6	" "
14	.006	400	CP4T20	TP409	S-6-006	TC-26	484-006	DT6D6	" "
15	.1	400	CP4T51	TP428	S-4-1	TC-1	484-.1	DT4P1	Phono Isolation
16	.1	400	CP4T51	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
17	.2	400	CP4T56	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
18	.006	400	CP4T20	TP409	S-6-006	TC-26	484-006	DT6D6	Ext. Ant. Isolation
19	220	500	CM5A30	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
20	47	500	CM5A14	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid

†Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	500KΩ	½	RV0C01	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions

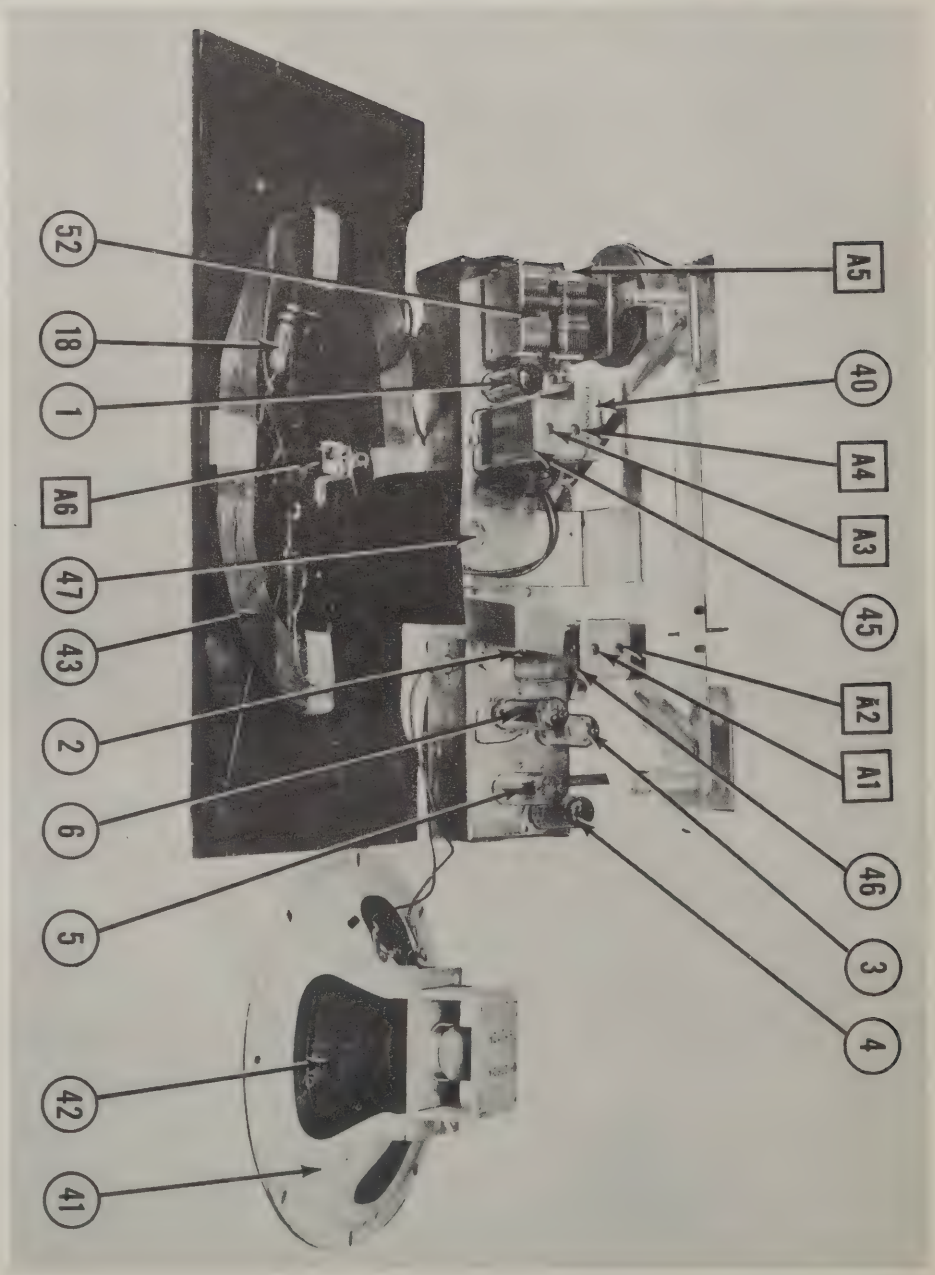
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	IRC PART No.	IDENTIFICATION CODES
22	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. Line Isolation
23	22KΩ	½	RC1H40	BTS-22K	Red-Red-Or. Oscillator Grid
24	15 Meg.	½	RC1H76	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
25	100Ω	½	RC1G12	BW-½-100	Br.-Blk.-Br. Decoupling
26	3.3 Meg.	½	RC1H68	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
27	4.7 Meg.	½	RC1H70	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
28	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. AF Plate Load
29	100Ω	½	RC1H12	BW-½-100	Br.-Blk.-Br. AF Cathode
30	1000Ω	½	RC1H24	BTS-1000	Br.-Blk.-Red Feedback
31	100KΩ	½	RC1G51	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
32	100KΩ	½	RC1G51	BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
33	470KΩ	½	RC1G58	BTS-470K	Yl.-Vi.-Yl. Output Grid
34	470KΩ	½	RC1G58	BTS-470K	Yl.-Vi.-Yl. " "
35	100Ω	1	RW1B12	BW-1-100	Br.-Blk.-Br. Output Cathode
36	12KΩ	½	RC1G37	BTS-12K	Br.-Red-Or. Feedback
37	1500Ω	2	RC4G26	BT-2-1500	Br.-Grn.-Red Filter
38	100Ω	2	RC4H12	BW-2-100	Br.-Blk.-Br. "
39	33Ω	1	RW1B06	BW-1-33	Or.-Or.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: BENDIX PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
40	50000 Ω CT	3.4Ω Feed-back	330Ω CT	.4Ω 10Ω	TA0008				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: BENDIX PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-116		
41	PM	3.4Ω	SP8R00	Mod. P8-U		
	CONE DIA.	VC DIA.				
42	7-3/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: BENDIX PART No.	MEISSNER PART No.
43	Loop Ant.	.1Ω	1.5Ω	AL0Z09	
44	Osc. Coil	.5Ω	6Ω	L05B01	14-1040
45	Input IF	22Ω	23Ω	TI0C08	16-6658
46	Output IF	23Ω		TI0D11	16-6670

DIAL LIGHT

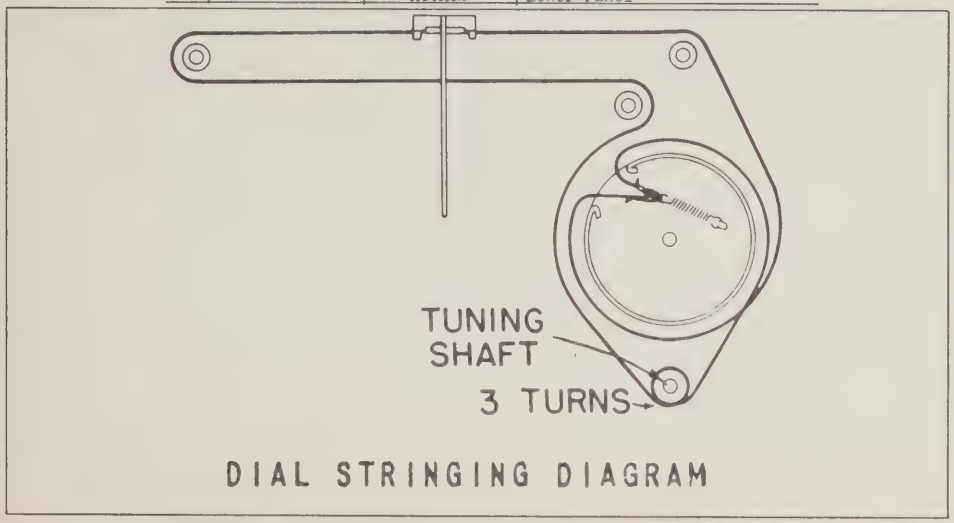
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: BENDIX PART No.		INSTALLATION NOTES
47	Screw	120	.05				Type C7

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: BENDIX PART No.	ASTATIC PART No.	REMARKS
48		L-70	

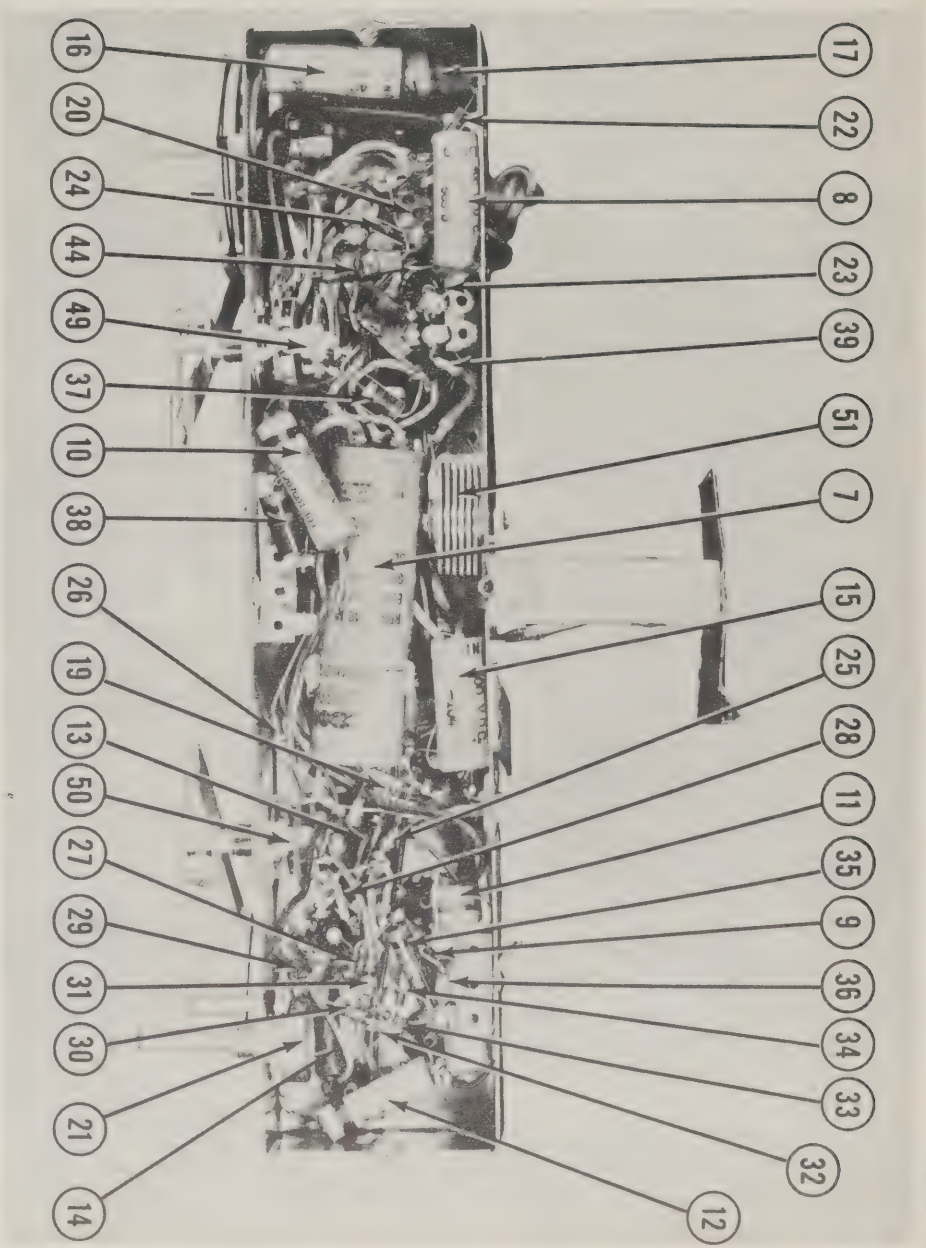
MISCELLANEOUS

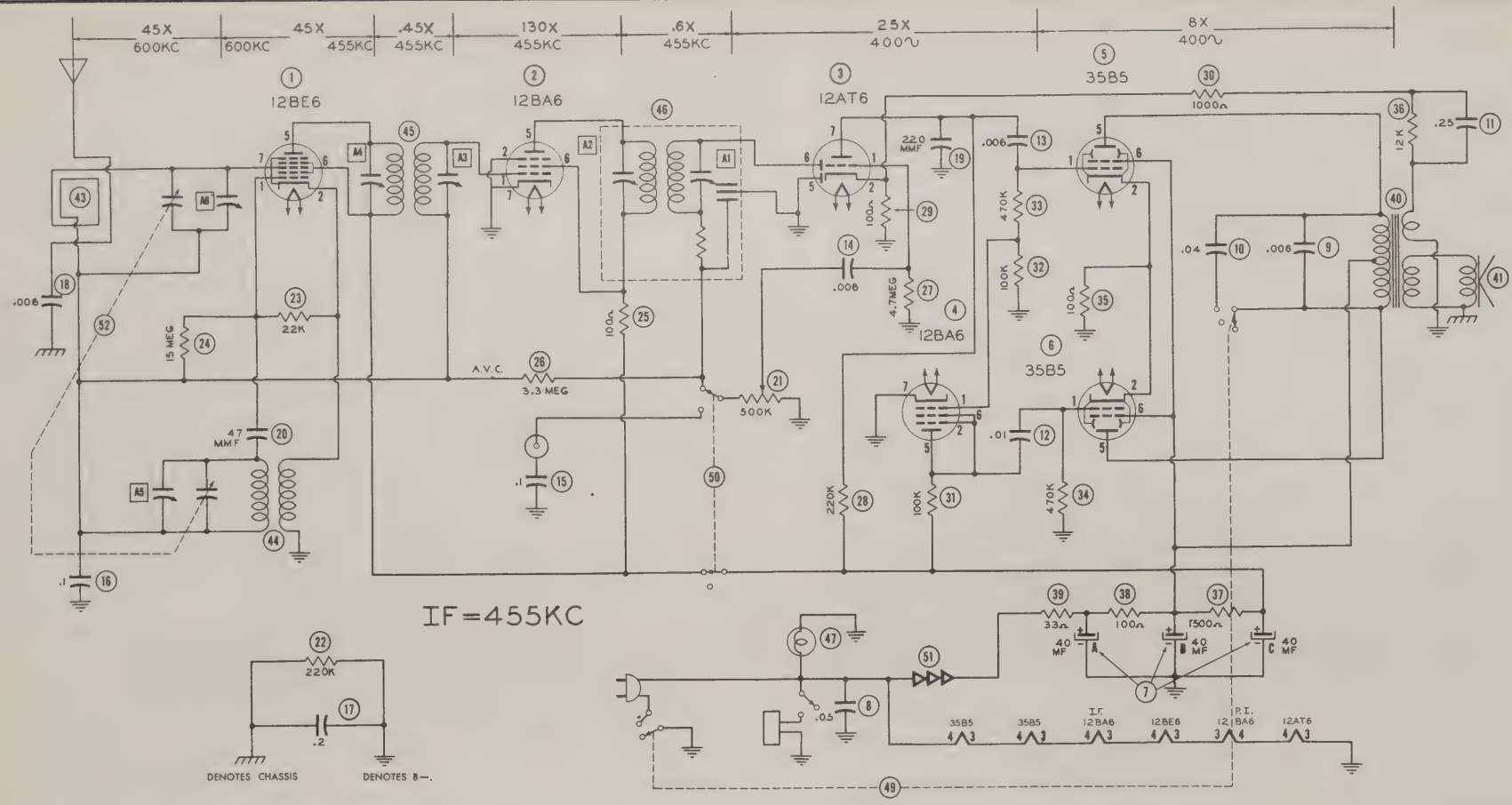
ITEM No.	PART NAME	BENDIX PART No.	NOTES
49	Switch	SR3M00	Tone & Power
50	"	SR2B01	Radio-Phono
51	Rectifier	QR0S00	Selenium
52	2 Gang Var. Cap	CV0B04	20-425MMF, 21-200MMF
A6	Trimmer Cap.	CT1A16	Ant. Adj. (1.6-18MMF)
	Knob	KY0M00	Control
	"	KY0M02	Lower Panel



DIAL STRINGING DIAGRAM

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6.4VDC§	0V.	24VAC	36VAC	85VDC	85VDC	-.5VDC
2	12BA6	-.5VDC	0V.	36VAC	48VAC	83VDC	83VDC	0V.
3	12AT6	-.5VDC	0V.	0V.	12VAC	0V.	-.5VDC	41VDC
4	12BA6	0V.	14VDC	24VAC	12VAC	14VDC	14VDC	0V.
5	35B5	0V.	7.2VDC	48VAC	82VAC	110VDC	115VDC	0V.
6	35B5	0V.	7.2VDC	82VAC	117VAC	110VDC	115VDC	0V.

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	.5Ω	21Ω	32Ω	30KΩ	30KΩ	3.3 Meg.
2	12BA6	3.3 Meg.	0Ω	3Ω	40Ω	30KΩ	30KΩ	0Ω
3	12AT6	5 Meg.	100Ω	0Ω	11Ω	0Ω	400KΩ	250KΩ
4	12BA6	100KΩ	130KΩ	21Ω	11Ω	130KΩ	130KΩ	0Ω
5	35B5	540KΩ	100Ω	40Ω	60Ω	30KΩ	30KΩ	540KΩ
6	35B5	500KΩ	100Ω	60Ω	80Ω	30KΩ	30KΩ	500KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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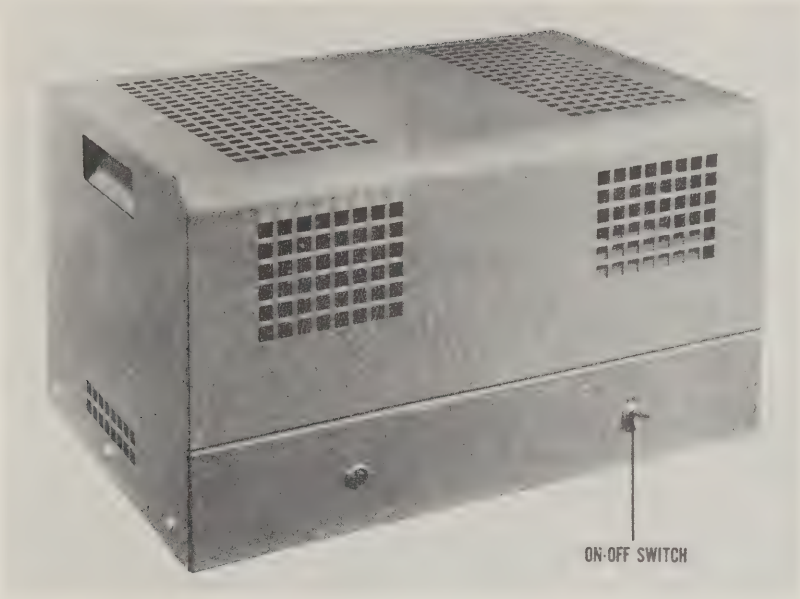
4716-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DAVID BOGEN MODEL GO-50



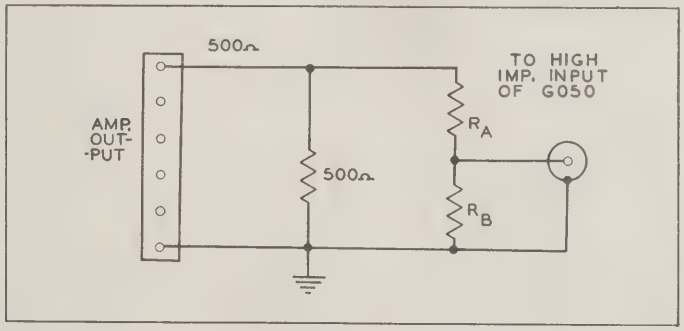
DAVID BOGEN MODEL GO-50

TRADE NAME	David Bogen, Model GO-50
MANUFACTURER	David Bogen Co., Inc., 663 Broadway, New York 12, N.Y.
TYPE SET	AC Operated 6 Tube Booster Amplifier
TUBES (SIX)	Types, 6SL7GT AF Phase Inv., 6SN7GT Driver, (2) 807 Power Output, 5Y3GT Rectifier, 5R4GY Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .800 Amps. @ 117V AC

BOOSTER DRIVE

The GO-50 can be driven by connection to a tap in the Bogen G-50 and GX-50 amplifiers, as shown on the schematics of these equipments. In addition the GO-50 can be driven by any amplifier which can develop a 2.5 volt signal with a low hum level across a 500,000 ohm load.

The recommended circuit to be used for amplifiers with a 500 ohm output is shown in Fig. 1. The 500 ohm resistor should have sufficient rating to dissipate the full output of the amplifier. An equivalent loudspeaker load may be used in place of the 500 ohm resistor.



The ratio of Ra to Rb is calculated to give approximately 2.5 volts across Rb when the driver amplifier is delivering about two-thirds of its rated output across the 500 ohm load. The values of Ra and Rb should be great enough so that at the full rated output voltage of the driver the power dissipated in Ra or Rb is not greater than 1/4 watt. Standard 1/2 watt resistors may then be used.

Recommended values of Ra and Rb for use with standard Bogen amplifiers to drive the GO-50 are given in the follow table:

DRIVER	Ra	Rb	DRIVER	Ra	Rb
E10	22K	1K	LLO and HLO Ra and Rb built in.		
E14	27K	1K			
E30	68K	1.8K	Any amplifier with RMA		
EX35	82K	2.2K	standard 70 volt output.	22K	1K

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DATE 10/47 SET #26 FOLDER #4716-9

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PART No.	STANDARD REPLACEMENT		
	[illegible]	6SL7GT	6SL7GT	[illegible]	
	[illegible]	6SN7GT	6SN7GT	[illegible]	
3	Power Output	[illegible]7	807	T-5BB	
	" "	[illegible]7	5C7	T-[illegible]B	
	Rectifier	[illegible]Y5T	5Y3GT	[illegible]T	
	"	[illegible]5Y3Y	[illegible]5Y3Y	[illegible]T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DAVID BOGEN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	[illegible]	[illegible]		[illegible]	D-2x8-450	CL-88	GLS450-8-8	KR598A	Filter - Blue
7	[illegible]	[illegible]							" - Red
	[illegible]	[illegible]		[illegible]	[illegible]	AP-4[illegible]	[illegible]	[illegible]	"
	[illegible]	[illegible]		[illegible]	[illegible]-450	UT-12	PRS450-10	BR1045	"
10	[illegible]	[illegible]		[illegible]	[illegible]-0	TA-550	PRS50-50	BR505	Bias Filter
11	[illegible]	[illegible]		[illegible]	[illegible]-5	TA-50	PRS25-50	BR502	Cathode Bypass
12	[illegible]	[illegible]		[illegible]	[illegible]-25	TA-50	PRS25-50	BR502	" "
13	[illegible]	[illegible]		[illegible]	[illegible]	TA-[illegible]	[illegible]-5	[illegible]	" "
14	.1	[illegible]		[illegible]	MTH-1-1	[illegible]	[illegible]-1	[illegible]	[illegible] Filter
15	.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]-1	[illegible]	[illegible]
16	.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]-1	[illegible]	[illegible] Coupling
17	.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]-1	[illegible]	" "
18	.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]-1	[illegible]	" "
19	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

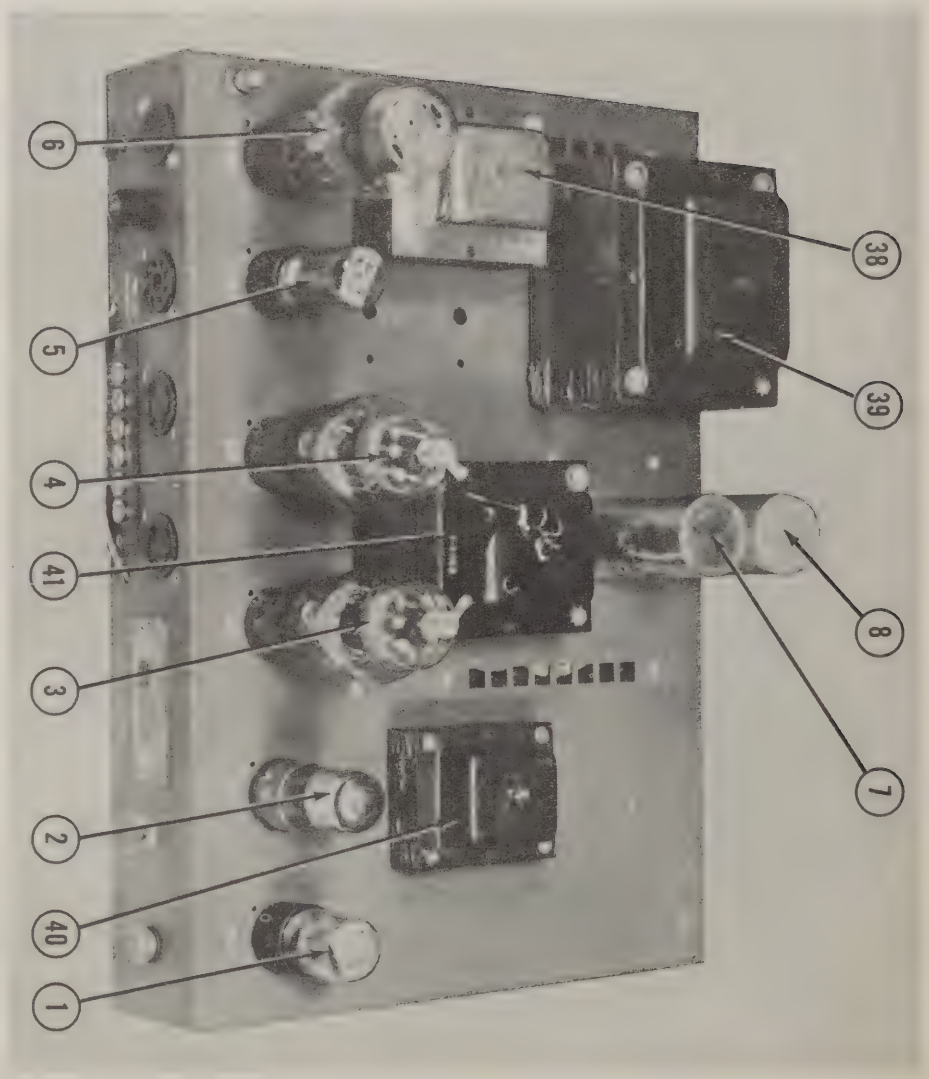
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	DAVID BOGEN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	[illegible]K	½		[illegible]	D1[illegible]-132	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DAVID BOGEN PART No.	IRC PART No.	
21	[illegible]	[illegible]		BTS-[illegible]K	Yl.-Blk.-Or. Isolation
22	470[illegible]	[illegible]		BTS-47[illegible]	Yl.-Vi.-Br. AF Cathode
23	3[illegible]00[illegible]	[illegible]		BTS-[illegible]3[illegible]	Or.-Blk.-Red AF Cathode
24	[illegible]	[illegible]		BTS-270K	Red-Yl.-Yl. AF Plate Load
25	[illegible]	[illegible]		BTS-27[illegible]K	Red-Yl.-Yl. Phase Inverter Plate Load
26	[illegible]	[illegible]		BTS-3900	Or.-White-Red Phase Inverter Cathode
27	[illegible]	[illegible]		BTS-2[illegible]K	Red-Yl.-Yl. Phase Inverter Cathode
28	[illegible]	[illegible]		BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
29	[illegible]	[illegible]		BTS-1[illegible]K	Br.-Blk.-[illegible]. [illegible]
30	1 Meg.	[illegible]		BTS-1 Meg.	Br.-Blk.-Grn. Driver Grid
31	1 Meg.	[illegible]		BTS-1 Meg.	Br.-Blk.-Br. Driver Grid
32	[illegible]	[illegible]		BTS-[illegible]	Br.-Blk.-[illegible] Driver Cathode
33	[illegible]	[illegible]		BTS-[illegible]	Br.-Blk.-[illegible] Driver Cathode
34	47[illegible]	[illegible]		BTS-47K	Yl.-Vi.-Or. Feedback
35A	10[illegible]	[illegible]		BT-50K	[illegible]
B	40[illegible]				"
36	[illegible]	[illegible]		DHA-1000	[illegible]

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA: DAVID BOGEN PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	MERIT PART No.	INSTALLATION NOTES
37	.062A	190Ω	5.5 Henries	T501B	C-2303#	T20C55†	C-2304†	#Drill one new mount-
38	.15A	50Ω	2.5 Henries	T510B				†Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
29	117 V AC @ .8A	600V CT @ .15A	11 V CT @ 6.3A SEC. 4 6.3 V AC @ 2.1A	5.0V AC @ 3.4A SEC. 5 5.0 V AC @ 2.4A	T361B			

TRANSFORMER (DRIVER)

ITEM No.	RATING: INDUCTANCE	RATING: DC RES.	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
41	10 Henries CT	140Ω CT	T116B				

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
41	CT	15Ω 7½ V‡	CT		T116B				†Drill new mounting holes. ‡

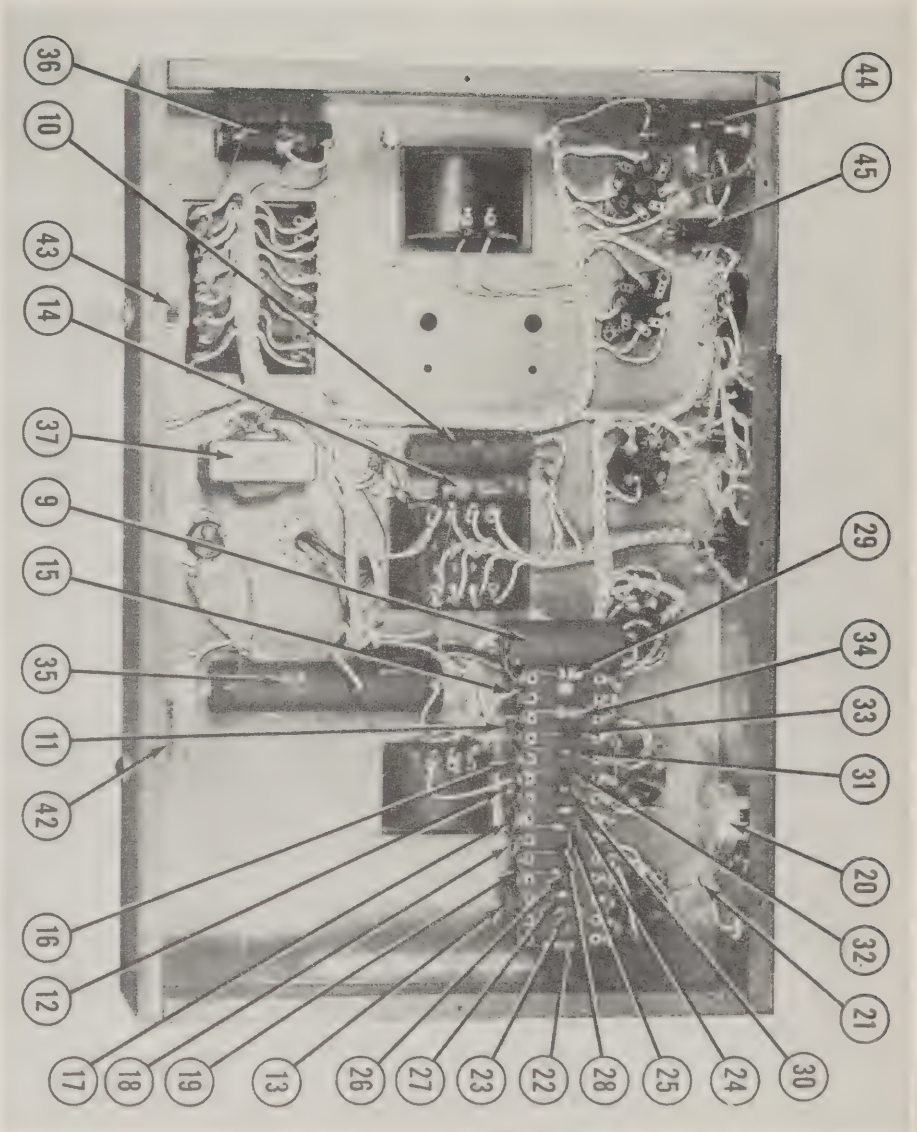
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
42	Bayonet	6-8	0.25	Blue			Type 44

MISCELLANEOUS

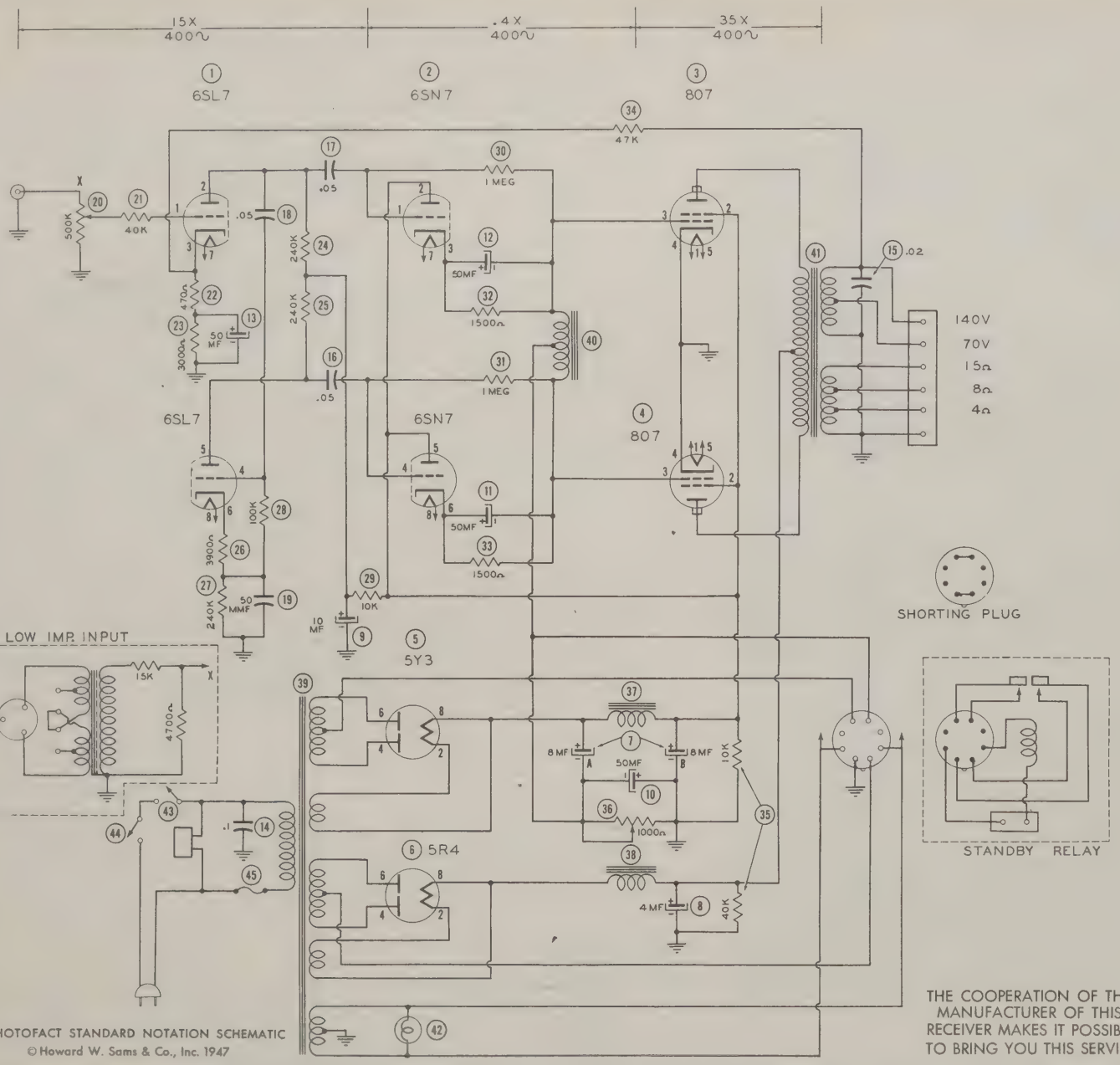
ITEM No.	PART NAME	DAVID BOGEN PART No.	NOTES
43	Switch		
44	"		
45	Fuse		

CHASSIS—BOTTOM VIEW



DAVID BOGEN MODEL CO-5G

DATE 10/1[illegible] SET #26 FOLDER #1 1 -



Pin No.	6SL7GT Volt.	6SL7GT Res.	6SN7GT Volt.	6SN7GT Res.
1	0V.	530kΩ	-3.5VDC	1 Meg.
2	150VDC	290KΩ	300VDC	10KΩ
3	2VDC	3.4KΩ	-10VDC	2KΩ
4	7.6VDC	320KΩ	-11VDC	1 Meg.
5	195VDC	290kΩ	300VDC	10KΩ
6	90VDC	220KΩ	-10VDC	2KΩ
7	6.4VAC	.1Ω	6.4VAC	.1Ω
8	6.4VAC	.1Ω	6.4VAC	.1Ω

Pin No.	[illegible] Volt.	[illegible] Res.	[illegible] Volt.	[illegible] Res.
1	3.4VAC	.1Ω	3.4VAC	.1Ω
2	300VDC	10KΩ	300VDC	10KΩ
3	-2VDC	680Ω	-2VDC	680Ω
4	0V.	0Ω	0V.	0Ω
5	3.4VAC	.1Ω	3.4VAC	.1Ω
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
Cap	400VDC	4.7KΩ	450VDC	40KΩ

Pin No.	5Y3GT Volt.	5Y3GT Res.	5R4GY Volt.	5R4GY Res.
1	0V.	INF.	0V.	INF.
2	310VDC	1.5KΩ	470VDC	40KΩ
3	0V.	INF.	0V.	INF.
4	300VAC	85Ω	700VAC	3Ω
5	0V.	INF.	0V.	INF.
6	300VAC	85Ω	700VAC	3Ω
7	0V.	INF.	0V.	INF.
8	310VDC	10KΩ	470VDC	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DEWALD MODEL A-507
BATTERY OPERATED

DEWALD MODEL A-507
BATTERY OPERATED

DE WALD MODEL A-507

TRADE NAME	De Wald, Model A-507
MANUFACTURER	De Wald Radio Mfg. Corp., 35-28 49th St., New York, N.Y.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES(FIVE)	1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output, 35W4 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 9V "A" Supply and 90 Volt "B" Supply .260 Amps. @ 117V AC or 54MA @ 9V DC and 9MA @ 90V DC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
2	200MMFD.	High side to ext. ant. lead. Low side to ext. ground lead.	1700KC	"	"	A5	Adjust for maximum output.
3	200MMFD.	"	1500KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET #26 FOLDER #4716-10

PARTS LIST AND DESCRIPTIONS

DE WALD MODEL A-507
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DE WALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AV	
4	Power Output	3V4	3V4	9BX	
5	Rectifier	3Y4	3Y4	8CX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DE WALD PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	.02	150	3001	2N521	USB-2x20-150	TA-305	PRSA150-20-50	EZ5515	Filter-Yellow
B	"	150							" -Red
C	150	25		TC2501	M-100-25	UHC-115	PRSA25-100	BRH251	Fil. Bypass-Blue
7	.05	400		TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.2	400		TP444	S-4-25	TC-2	484-.25	DT4P2	Fil. Bypass
9	.002	600		TP405	S-6-002	TC-12	684-002	DT6S2	Output Plate Bypass
10	.01	400		TP401	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	AF Screen Bypass
12	.001	600		TP404	S-6-001	TC-21	684-001	DT6D1	Audio Coupling
13	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
14	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
15	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
16	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass Cer.
17	220			MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter Cer.
18	47			MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DE WALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	1 Meg.	½	3006	MR53	D1M-137	AM-63-2	Volume Control-See Note
B	Shaft		Not Req.	Not Req.	F	RS-2	Attach to 19A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

Note-Use original dial cord pully on volume control shaft.

RESISTORS

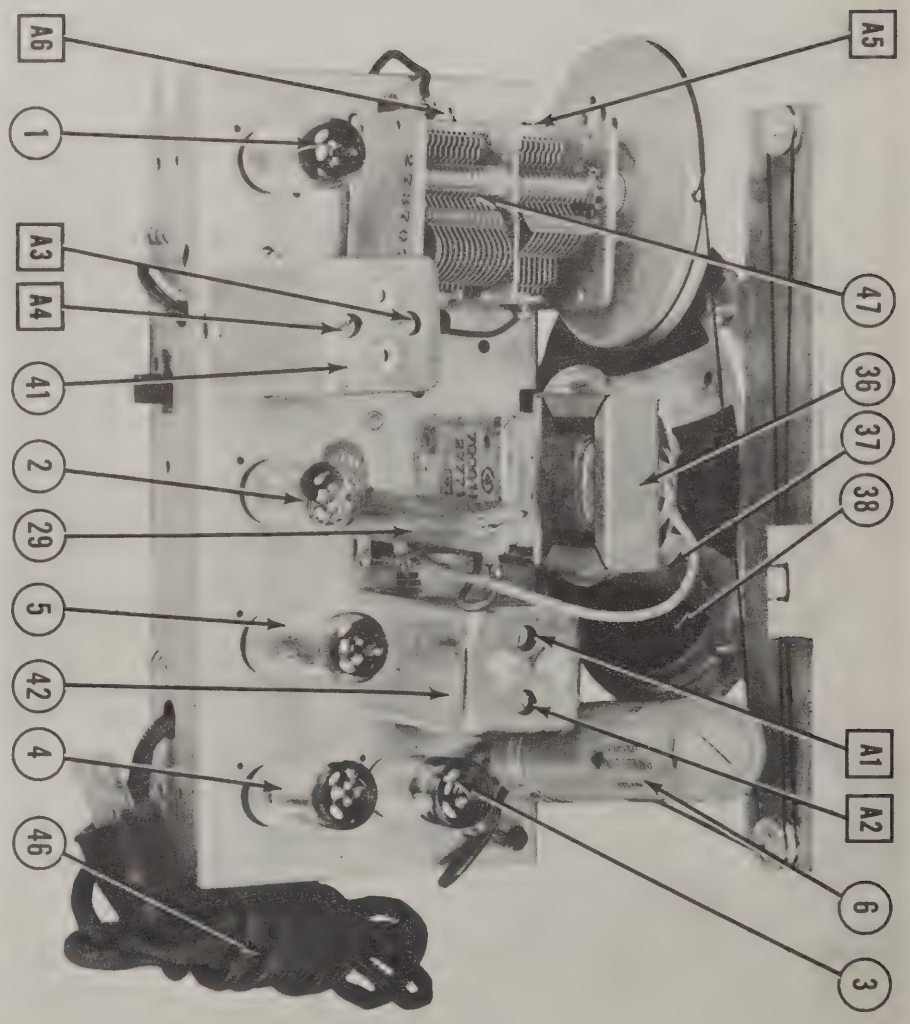
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DE WALD PART No.	IRC PART No.	IDENTIFICATION CODES
20	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
21	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
22	10KΩ	½		BTS-10K	Br.-Blk.-Or. Screen Dropping
23	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
26	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
27	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
28	2200Ω	½		BTS-2200Ω	Red-Red-Red Filter
29A	190Ω	10		ABA-2000	Filament String-See Note 1
B	75Ω				" "
30	2200Ω	½		BTS-2200	Red-Red-Red " "
31	2200Ω	½		BTS-2200	Red-Red-Red " "
32	35Ω	1		BW-1-33	" "
33	390Ω	½		BW-½-390	Or.-White-Br. " "
34	680Ω	½		BTS-680	Blue-Gray-Br. " " -See Note 2
35	680Ω	½		BTS-680	Blue-Gray-Br. " " -See Note 2

NOTE 1-On IRC replacement set slider at 75Ω from one end.
NOTE 2-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DE WALD PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
36	9000Ω	3.5Ω	820Ω	.9Ω		A-3879*	T22S47*	A-2922*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: DE WALD PART No.	JENSEN PART No.		INSTALLATION NOTES
37	FIELD	VC IMP.		ST-105†		†Drill and tap magnet frame
	PM	3.5Ω		Mod. P5-X		
38	CONE DIA.	VC DIA.				
	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

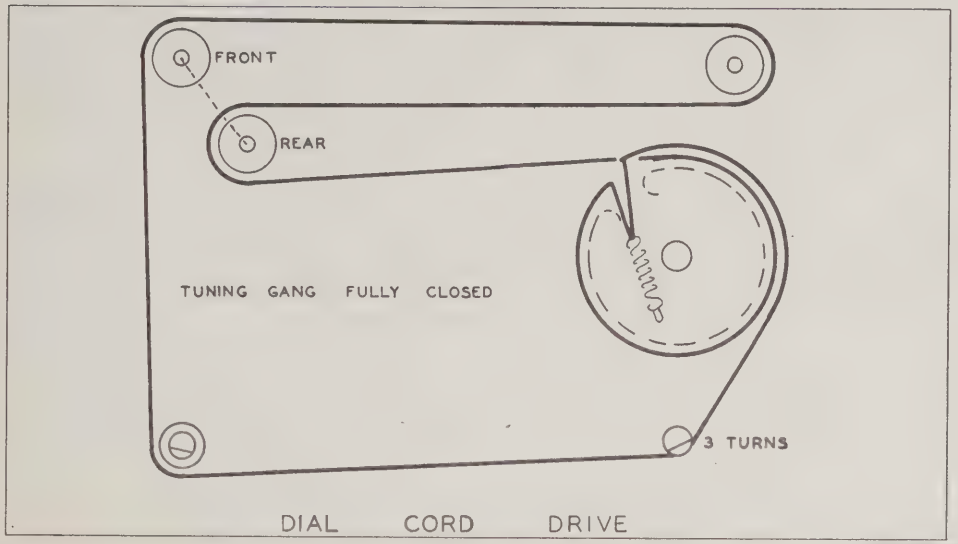
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: DE WALD PART No.	MEISSNER PART No.
39	Loop Ant.	.1Ω	2Ω	1021	
40	Osc. Coil	1Ω	6Ω	1020	14-1040
41	Input IF	24Ω	24Ω	1019-1	16-6656
42	Output IF	26Ω	26Ω	1019-2	16-6660

BATTERIES

ITEM No.	VOLTAGE	DE WALD PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
43	3V "A"		(2)#746			2 used in series
44	90V "B"			(2)#482		" " " "

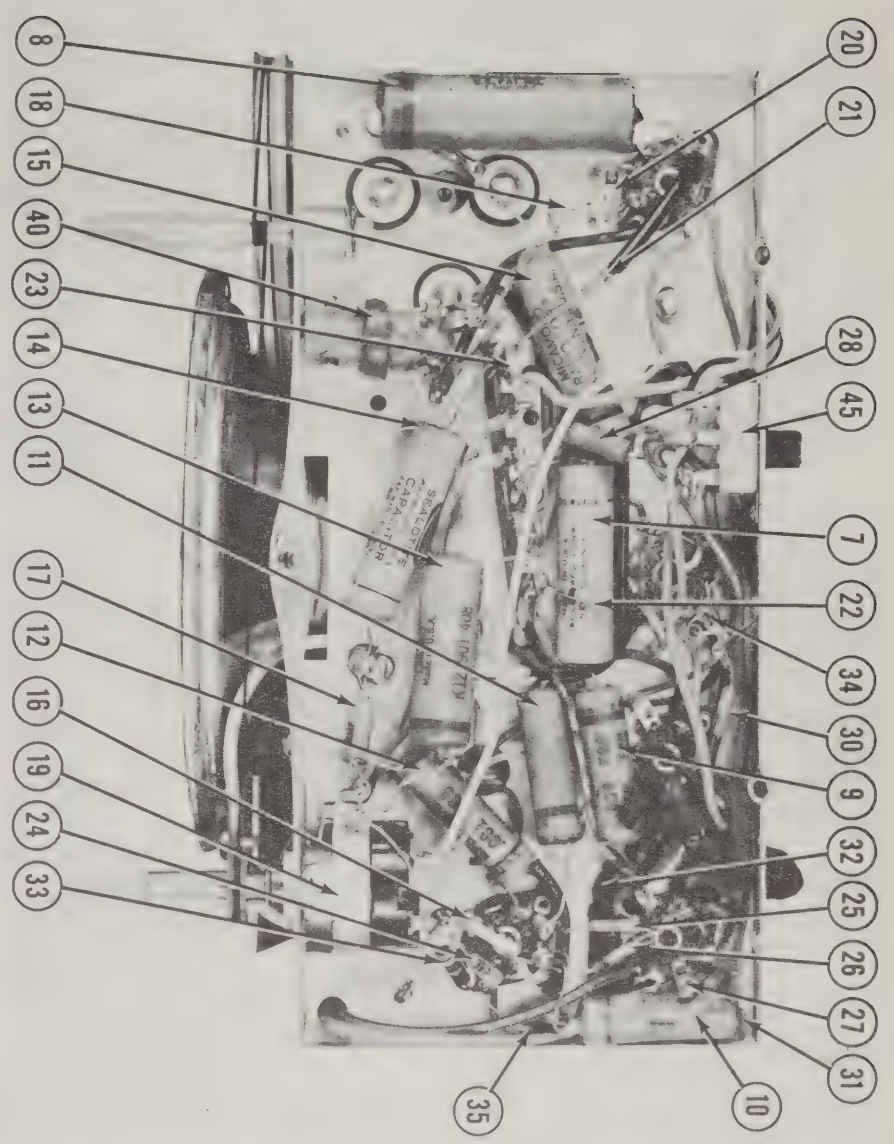
MISCELLANEOUS

ITEM No.	PART NAME	DE WALD PART No.	NOTES
45	Switch	8019	Power
46	Line Cord	5002	550Ω
47	2 Gang Var. Cap.	2003	20-456MMF, 29-188MMF
	Battery Cable	5003	
	Dial Scale	8001	
	Knob	4044-1	Plain
	"	4044-2	Indicator
	Pointer	9025	



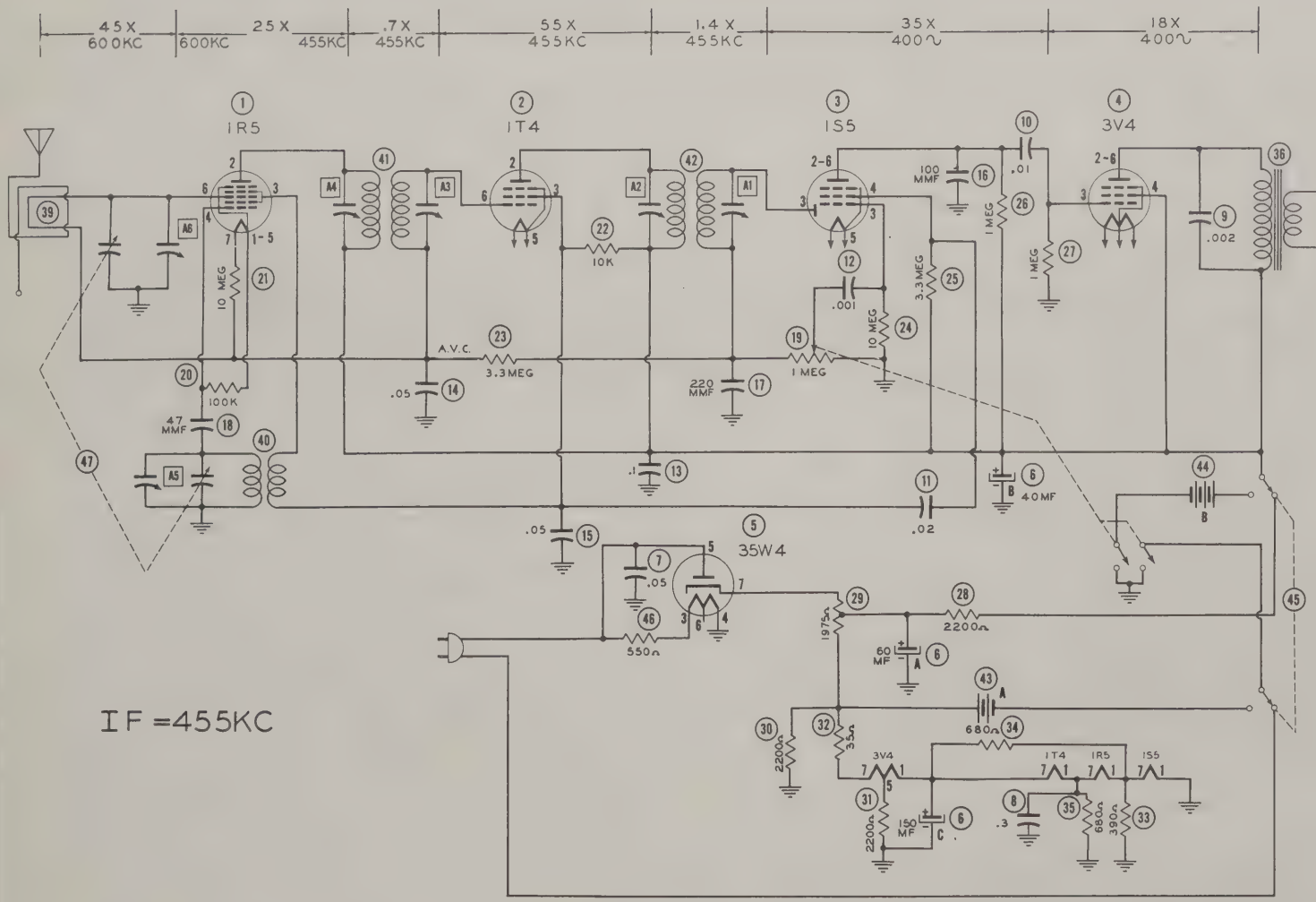
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DE WALD MODEL A-507
BATTERY OPERATED

DATE 10/47 SET #26 FOLDER #4716-10



*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

Pin No.	1R5 Volt.	1R5 Res	1T4 Volt.	1T4 Res.
1	1.2VDC	*	2.5VDC	*
2	3VDC	3.8KΩ	83VDC	3.8KΩ
3	3VDC	14KΩ	58VDC	14KΩ
4	-3VDC§	100KΩ	0V.	INF.
5	1.2VDC	*	2.5VDC	*
6	.1VDC	4 Meg.	.1VDC	4 Meg.
7	2.5VDC	*	4VDC	*

§TAKEN WITH VACUUM TUBE VOLTMETER.

Pin No.	1S5 Volt.	1S5 Res.	3V4 Volt.	3V4 Res.
1	0V.	0Ω	4VDC	*
2	0V.	INF.	80VDC	4.2KΩ
3	-.1VDC	1 Meg.	83VDC	3.8KΩ
4	4.8VDC	3.3 Meg.	0V.	INF.
5	8.8VDC	1 Meg.	5.3VDC	*
6	0V.	10 Meg.	0V.	1 Meg.
7	1.2VDC	*	2.7VDC	*

Pin No.	35W4 Volt.	35W4 Res.
1	8.4VDC	*
2	8.4VDC	*
3	35VAC	35Ω
4	0V.	0Ω
5	117VAC	580Ω
6	6.8VAC	8Ω
7	111VDC	2KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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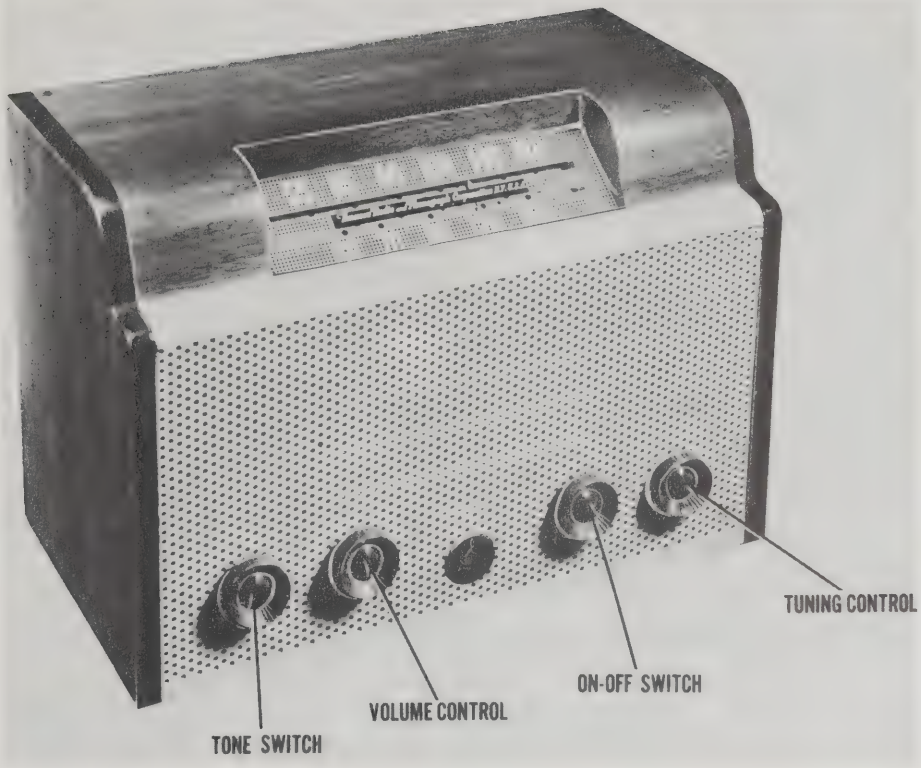
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4716-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage readings.

EMERSON MODELS 512, 515, 516, 550



EMERSON MODELS 512, 515, 516, 550

EMERSON MODEL 512

TRADE NAME	Emerson, Models 512, 515, 516, 550 (Ch. 120056)
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York 11, N.Y.
TYPE SET	AC-DC Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .250 Amp. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer 1-11/16" from left edge of dial backplate. Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) 14Q7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .01 MFD. to reduce hum modulation.
2	.1 MFD.	High side to ext. ant. lead. Low side to chassis.	"	"	"	A5	Adjust for minimum output.
3		Loop	1400KC	5½" from left edge of dial-back plate.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4		"	"	Tune for maximum output.	"	A7	Adjust for maximum output.
5		"	600KC	"	"	Loop	This step is only necessary if the loop has been replaced. Adjust the free half turn of the loop to either side of the center of the loop to give maximum output. Then repeat Step 4.

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DATE 10/47 SET #26 FOLDER #4716-11

PARTS LIST AND DESCRIPTIONS

EMERSON MODELS 512, 515, 516, 550

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	925011	2N521	M-2x50-150	TA-505	PRSA150-50-50	EZ5515	Filter
B	50	150							"
8	.05	400	920030	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.2	200	920050	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
10	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4P2	Output Plate Bypass
11	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4P2	Audio Coupling
12	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	Tone Compensation
13	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
14	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
15	.05	400	920020	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
16	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	RF Screen Bypass
17	212	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Audio Plate Bypass
18	110	500	920010	MC235	MO.5-311	1FM-31	1468-0001	5W5T1	Diode Filter
19	110	500	920010	MC235	MO.5-311	1FM-31	1468-0001	5W5T1	RF Coupling
20	212	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	500KΩ	½	390180	MK401	D13-133	AM-60-2	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 21A per instructions

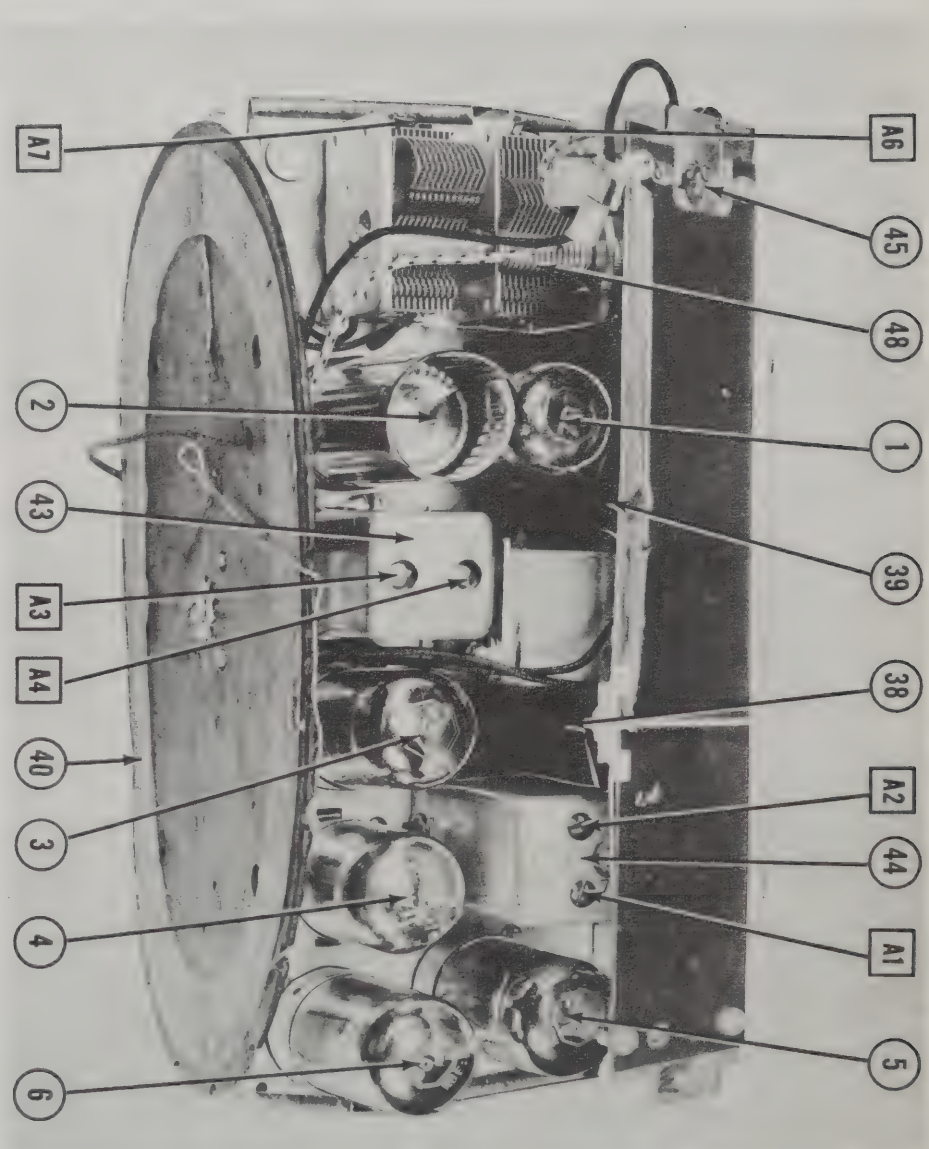
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
22	10KΩ	½	310730	BTS-10K	Br.-Blk.-Or. RF Plate Load
23	39KΩ	½	310870	BTS-39K	Or.-White-Or. RF Screen Dropping
24	22KΩ	½	310810	BTS-22K	Red-Red-Or. Converter Grid
25	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. RF Grid
26	22KΩ	½	310810	BTS-22K	Red-Red-Or. Oscillator Grid
27	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
28	3.3 Meg.	½	321330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
29	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
30	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
31	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
32	150Ω	½	340290	BW-½-150	Br.-Grn.-Br. Output Cathode
33	1000Ω	1	370490	BTA-1000	Br.-Blk.-Red Filter
34	220KΩ	½	321050	BTS-220K	Red-Red-Yl. Line Isolation
35	15Ω	½	340050	BW-½-15	Br.-Grn.-Blk. Rectifier Ballast
36	10Ω	½	340010	BW-½-10	Br.-Blk.-Blk. Series Pilot Light

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
37	2100Ω	4.6Ω	142Ω tapped @7Ω	.8Ω	734080	A-3876*		A-2928*	*Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA EMERSON PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
38	PM	4.6Ω	180008			
	CONE DIA.	VC DIA.				
39	4"X6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

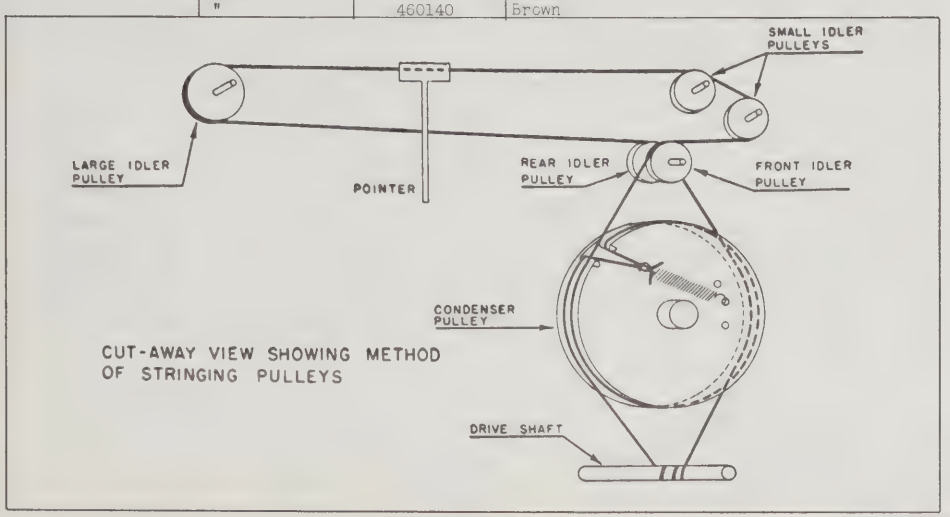
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	MEISSNER PART No.	
40	Loop Ant.	.1Ω	1.5Ω	700010		
41	Osc. Coil	.7Ω	6Ω	716005	14-1040	Add 50MMFD from grid to high side tuning cap.
42	Wave Trap		70Ω			
43	Input IF	31Ω	20Ω	720380	16-6658	
44	Output IF	28Ω		720390	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.		INSTALLATION NOTES
45	Bayonet	6-8	0.15	Brown	807000		Type 47

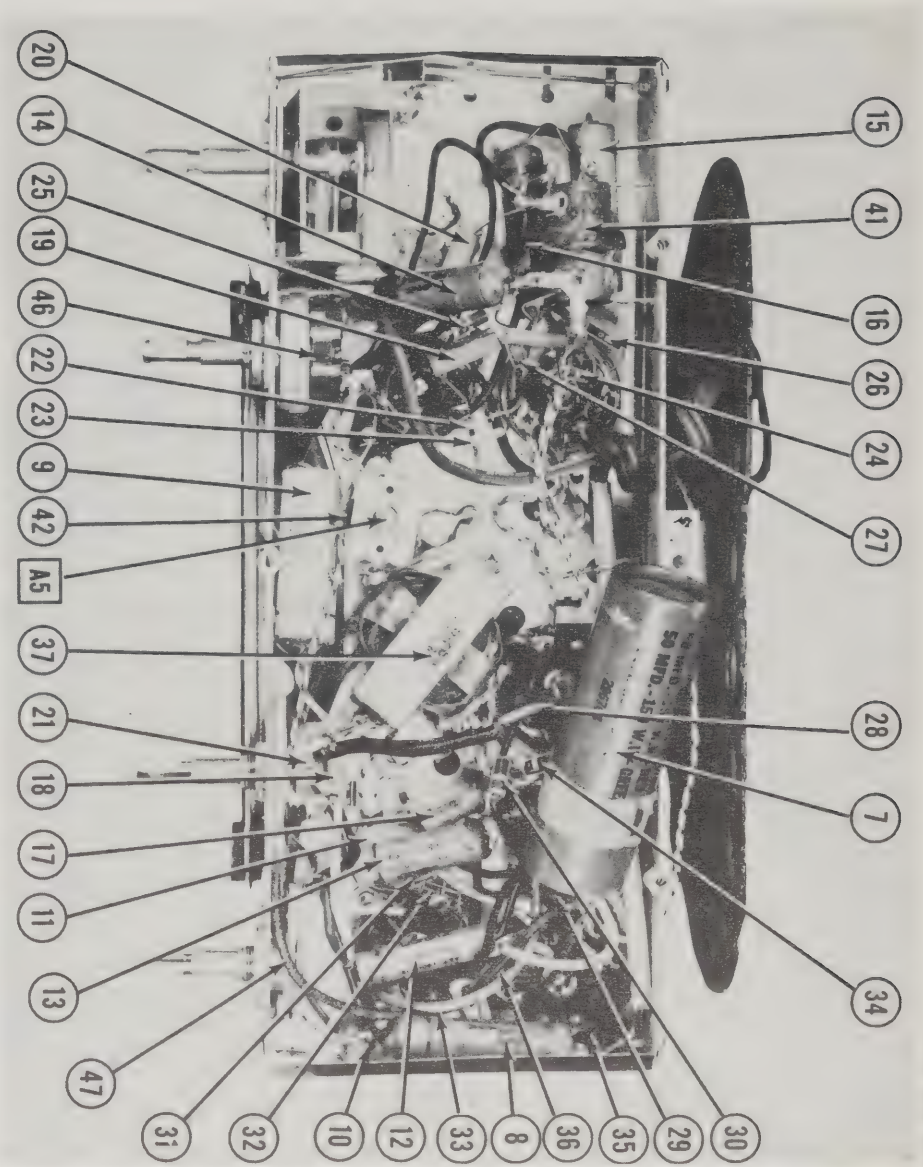
MISCELLANEOUS

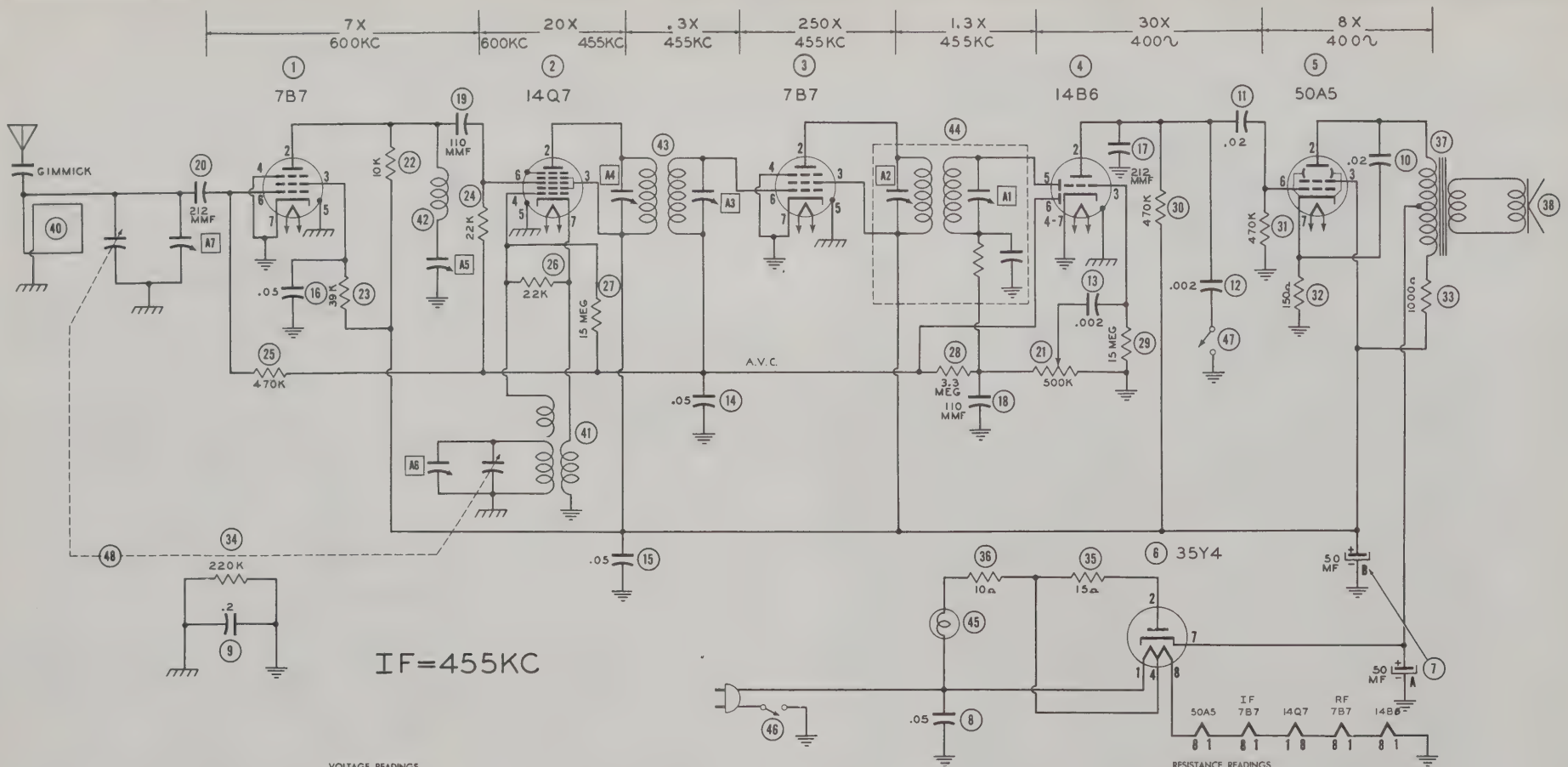
ITEM No.	PART NAME	EMERSON PART No.	NOTES
46	Switch	510200	Power
47	Tone Switch	510120	
48	2 Gang Var. Cap.	900070	(27-385MMF, 22-185MMF)
	Dial Backplate	520380	
	Dial Pointer	525012	
	Dial Glass	520450	
	Knob	460470	Black
	"	460140	Brown



CUT-AWAY VIEW SHOWING METHOD OF STRINGING PULLEYS

CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	12VAC	53VDC	53VDC	0V.	0V.	-.6VDC	0V.	18VAC
2	14Q7	32VAC	88VDC	88VDC	-9.7VDC§	0V.	-.6VDC	0V.	1-VAC
3	7B7	32VAC	88VDC	88VDC	0V.	0V.	-.7VDC	0V.	38VAC
4	14B6	0V.	56VDC	-.8VDC	0V.	-.2VDC	-.7VDC	0V.	12VAC
5	50A5	38VAC	111VDC	88VDC	0V.	0V.	0V.	5.8VDC	87VAC
6	35Y4	117VAC	112VAC	0V.	113VAC	117VDC	115VAC	117VDC	87VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	13Ω	60KΩ	90KΩ	0Ω	0Ω	4 Meg.	0Ω	20Ω
2	14Q7	32Ω	50KΩ	50KΩ	22KΩ	230KΩ	3.2 Meg.	.7Ω	20Ω
3	7B7	32Ω	50KΩ	50KΩ	0Ω	0Ω	3.2 Meg.	0Ω	38Ω
4	14B6	0Ω	520KΩ	15 Meg.	0Ω	650KΩ	3.2 Meg.	0Ω	13Ω
5	50A5	38Ω	50KΩ	50KΩ	INF.	0Ω	450KΩ	150Ω	90Ω
6	35Y4	120Ω	130Ω	INF.	117Ω	50KΩ	120Ω	50KΩ	90Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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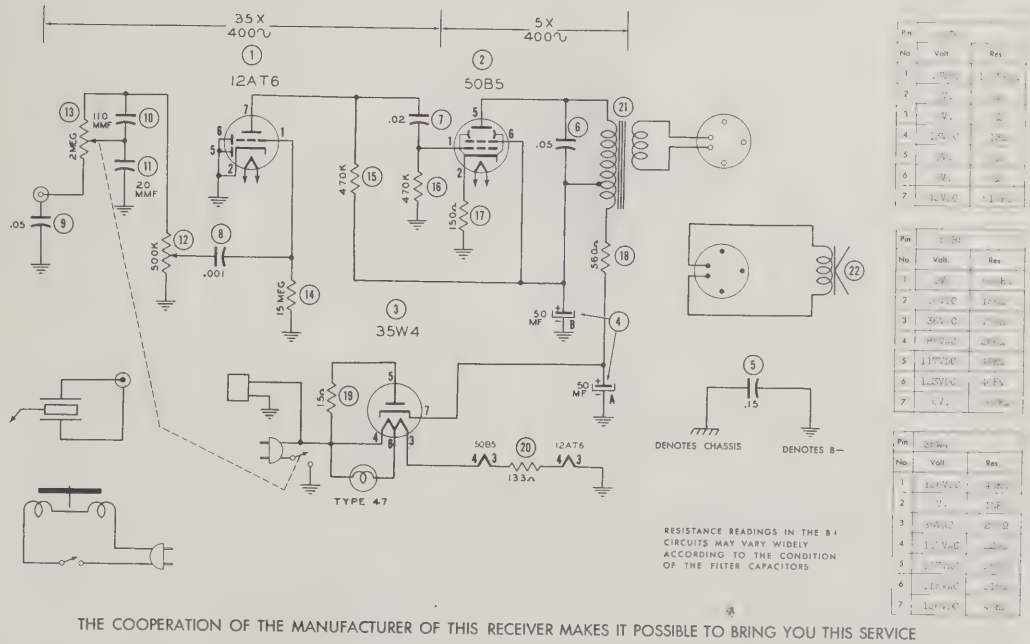
4716-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

EMERSON MODEL 549

TRADE NAME	Emerson, Model 549 (Ch. 120051)
MANUFACTURER	Emerson Radio & Phono Corp., 111 Eighth Ave., New York 11, N.Y.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier and Speaker
TUBES (THREE)	Types, 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .250 Amps. @ 117V AC



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4716-12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DATE 10/47 SET #26 FOLDER #4716-12

PARTS LIST AND DESCRIPTIONS

EMERSON
TK 95L 54

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12AT6	12AT6	7BT	
2	Power Output	50B5	50B5	7BZ	
3	Rectifier	35w4	35w4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	50	150	925009	2N521	DSB-2x50-150	TA-505	PRSA150-50-50	EZ5515	Filter - Red
B	50	150							" - Green
5	.1	200	920420	TP417	S-4-2	TC-1	484-.15	DT4P2	Line Isolation
6	.05	400	920030	TP426	S-4-05	TC-15	484-05	DT4S5	Output Plate Bypass
7	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
8	.001	600	920170	TP404	S-6-001	TC-22	684-001	DT6D1	" "
9	.05	400	920030	TP426	S-4-05	TC-15	484-05	DT4S5	Phono Isolation
10	110	500	910220	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Tone Comp.
11	200	500	910230	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	" " -See Note 1

Note 1-Some sets may use 220 MMFD, Emerson Part #910000.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
12A	500KΩ	½	390016	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 12A per instructions
13A	2 Meg.	½	390370	MK403	D13-139	AM-66-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 13A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
14	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
15	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
16	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
17	150Ω	1	370290	BW-1-150	Br.-Grn.-Br. Output Cathode
18	560Ω	½	340430	BTS-560	Grn.-Blue-Br. Filter
19	15Ω	½	340050	BW-½-15	Br.-Grn.-Blk. Rectifier Ballast
20	133Ω	5	394160	ABA-150	Line Dropping-See Note

Note-On IRC replacement set slider at 133Ω from one end.

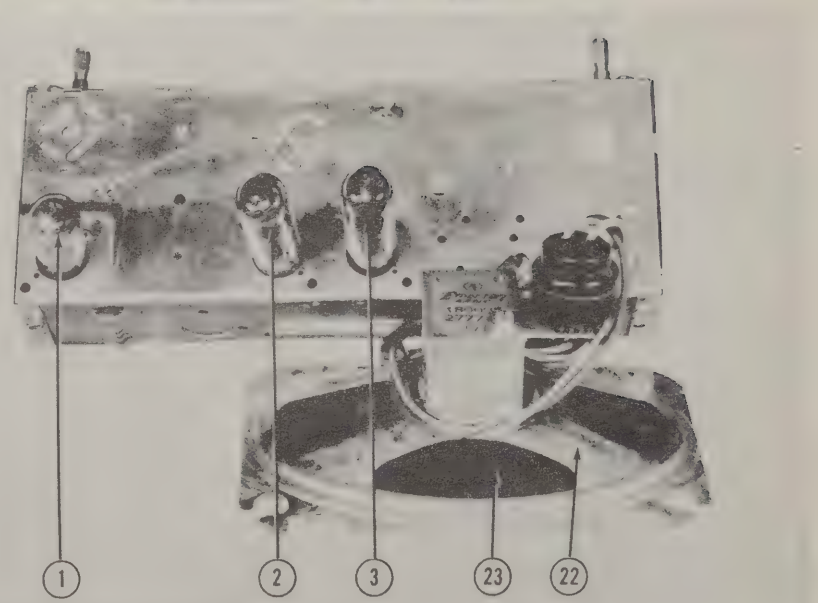
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
21	2900Ω	4.6Ω	224Ω tapped @ 9Ω	.85Ω	734000	A-3876*		A-2928*	*Add extra filter to reduce hum level.

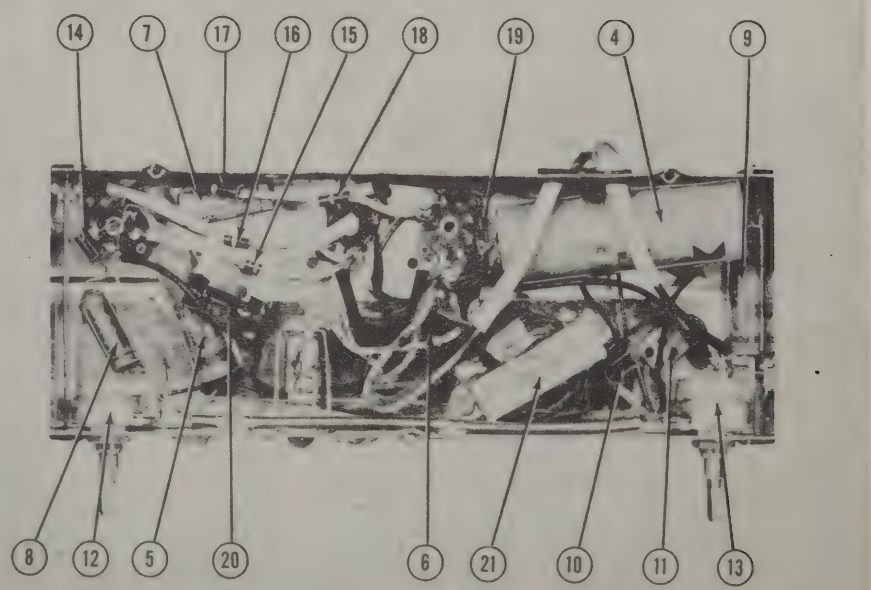
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
22	FIELD	VC IMP.	180008			
	PM	4.6Ω				
23	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
	4"x6"	1/2"				

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



FARNSWORTH MODELS EK-081, EK-082, EK-083, EK-681

FARNSWORTH MODELS EK-081, EK-082, EK-083, EK-681 PAGE 1

TRADE NAME	Farnsworth, Models EK-081 (Ch. C-156), EK-082 (Ch. C-157), EK-083 (Ch. C-193), EK-681 (Ch. C-156).
MANUFACTURER	Farnsworth Television & Radio Corp., Marion, Ind.
TYPE SET	AC Operated Radio Phono. Combination Superheterodyne Receiver with Loop Antenna
TUBES (EIGHT)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AF, 6SQ7 AVC-Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .650 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1620KC **SHORT WAVE** 9.4 - 15.4MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	250MMFD.	High side to ext. ant. (red). lead. Low side to ext. grnd. (black) lead.	455KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output in order given then repeat.
2	250MMFD.	"	1620KC	"	"	"	A5	Adjust for maximum output.
3	250MMFD.	"	1500KC	"	Tune for maximum output.	"	A6	" " " "
4	400Ω carbon res.	"	15.4MC	SW (fully clockwise)	Tuning cap. fully open.	"	A7	Tighten trimmer to maximum capacity, then loosen to second peak. Adjust for maximum output.
5	"	"	15MC	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output.
6	"	"	9.7MC	"	"	"	A9	Rock tuning cap. and adjust for maximum output. Repeat Steps 4 and 5.

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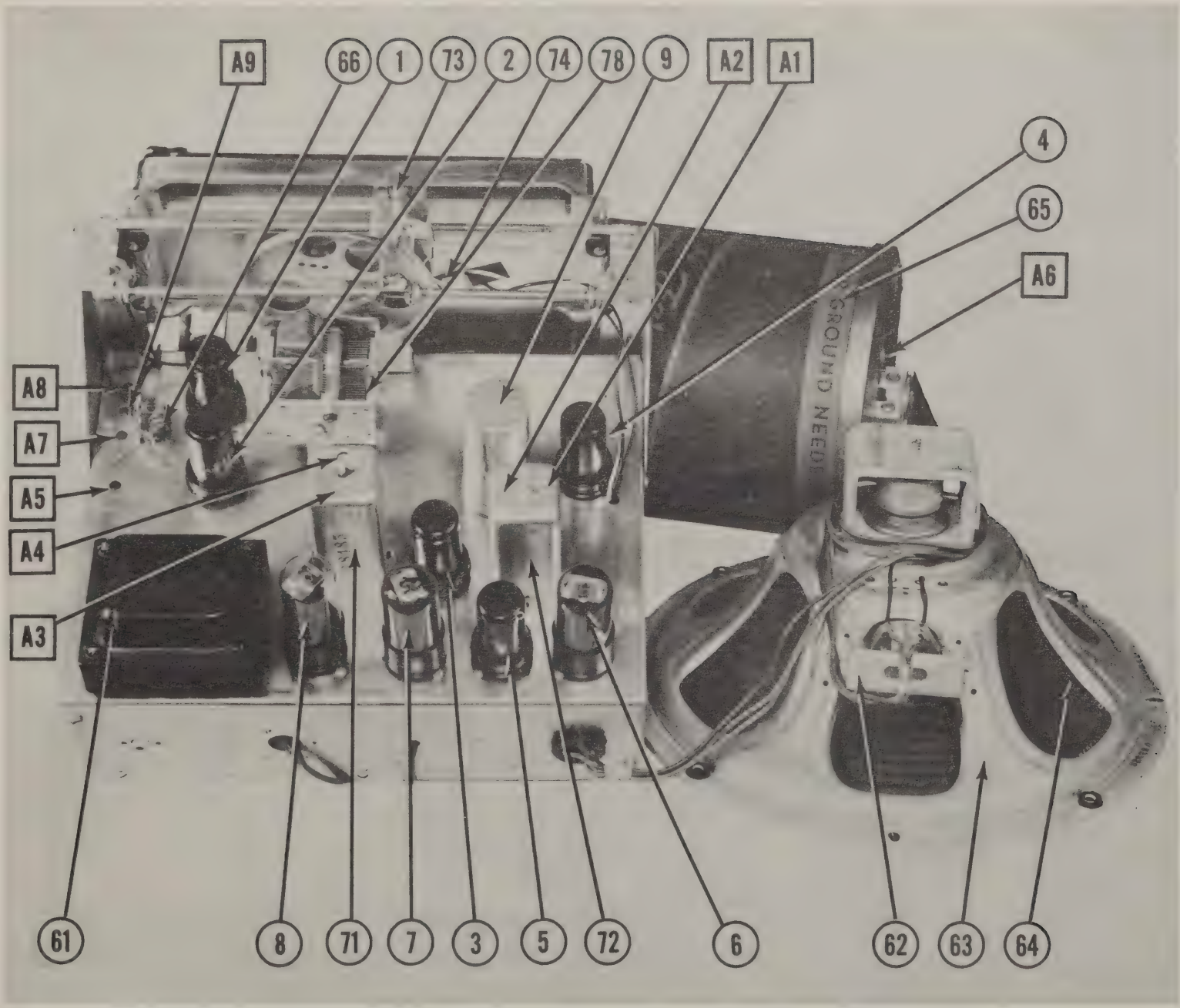
DATE 10/47 SET #26 FOLDER #4716-13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FARNSWORTH MODELS EK-081, EK-082, EK-083, EK-681 PAGE 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	[illegible]	
2	Converter	6SA7	6SA7	[illegible]	
3	IF Amp.	6SK7	6SK7	[illegible]	
4	Det.-AF	6SQ7	6SQ7	[illegible]	
5	AVC-Phase Inv.	6SC7	6SC7	[illegible]	
6	Power Output	6V6GT	6V6GT	7AC	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FARNSWORTH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	450	25214	FP429	DY-403	EL-424	AF862J4A	UPCDJ53	◓ Filter
B	20	450							■ "
C	20	450							▲ "
D	20	25							Cathode Bypass
10	.005	600	25031	TP409	MPH-S-005	TC-25	684-005	DT6D5	Line Filter
11	.003	600	25184	TP406	S-6-003	TC-23	684-.03	DT6D3	Output Plate Bypass
12	.003	600	25184	TP406	S-6-003	TC-23	684-003	DT6D3	" " "
13	.02	600	25195	TP412	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
14	.02	600	25195	TP412	S-6-02	TC-12	684-02	DT6S2	" "
15	.01	400	25194	TP421	S-4-01	TC-11	484-01	DT4S1	" "
16	.01	400	25194	TP421	S-4-01	TC-11	484-01	DT4S1	" "
17	.01	400	25194	TP421	S-4-01	TC-11	484-01	DT4S1	" "
18	.003	600	25184	TP406	S-6-003	TC-23	684-003	DT6D3	Tone Comp.
19	.002	600	25185	TP405	S-6-002	TC-22	684-002	DT6D2	" "
20	.05	200	25196	TP426	S-4-05	TC-15	484-05	DT4S5	IF Cathode Bypass
21	.1	200	25215	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
22	.05	600	25196	TP415	S-6-05	TC-15	684-05	DT6S5	Screen Bypass
23	.05	200	25196	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
24	.005	600	25031	TP406	S-6-005	TC-25	684-005	DT6D5	Osc. Feedback PB
25	.01	600	25194	TP410	S-6-01	TC-11	684-01	DT6S1	RF Plate Decoupling
26	47	500	25133	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	AF Plate Bypass
27	100	500	25188	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
28	100	500	25188	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "
29	24	500	25192	MC220	MO.5-425	MS-425	1468-000025	5W5Q25	AVC Coupling
30	47	500	25193	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid
31	100	500	25188	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
32	1350	300	25213						Fixed Pad PB
33	215	500	25212						Fixed Trimmer PB

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FARNSWORTH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
34A	3 Meg.	½	78057				Volume Control
B	Shaft		Not Req.				Attach to 34A per instructions
C	Switch		" "				" " " "
35A	3 Meg.	½	78072	UM165	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 35A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: MEISSNER PART No.	
6A	Loop Ant.	75Ω	.7Ω	38648		
6B	Ant. Load. Coil		1.8Ω	38794		
6C	SW Ant.Coil	0Ω	0Ω	38542	14-1044	
6D	Peakin Coil		.2Ω	38544		
6E	Wave Trap		IMF.	38464		
70A	BC Osc. Coil		6Ω	38543		Items 70A & 70B wound on same form.
B	SW Osc. Coil		0Ω			
71	Input IF	6.5Ω	6.5Ω	38[illegible]	16-5740	
72	Output IF	7Ω	7.5Ω	38[illegible]	16-5742	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
73	Bayonet	6-8	0.25	Blue	42185		Type 44
74	"	"	"	"	42185		" "

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
75		L71S	

MISCELLANEOUS

ITEM No.	PART NAME	FARNSWORTH PART No.	NOTES
76	Switch	90175	Band-Phono
77	PB Switch	90118	
78	2 Gang Var. Cap.	26194	13-465 MMF, 12-246 MMF
	Trimmer Strip	26175	Pushbutton
A6	Trimmer Cap.	26032	Ant. Adj.
	Trimmer Strip	26195	A5, A7, A8, A9
	Coil Strip	38405	Pushbutton
	Pickup Cable	22147	For EK-081, EK-083
	" "	22146	For EK-082
	Glass Dial	31273	
	Dial Background	04055	
	Escutcheon	561397	
	Dial Pointer	07373	
	Knob	59134	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FARNSWORTH PART No.	IRC PART No.	
36	100KΩ	½	77214	BTS-100K	Br.-Blk.-Yl. AVC Network
37	1500Ω	½	77263	BTS-1500	Br.-Grn.-Red RF Plate Load
38	1000Ω	½	77262	BTS-1000	Br.-Blk.-Red RF Plate Decoupling
39	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Converter Grid
40	22KΩ	½	77266	BTS-22K	Red-Red-Or. Oscillator Grid
41	10KΩ	2	77013	BT-2-10K	Br.-Blk.-Or. Converter Screen Dropping
42	22KΩ	1	77069	BTA-22K	Red-Red-Or. Screen Dropping
43	1500Ω	½	77263	BTS-1500	Br.-Grn.-Red IF Cathode
44	22KΩ	½	77266	BTS-22K	Red-Red-Or. Series Phono-See Note 1
45	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Phono Shunt-See Note 2
46	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Tone Compensation
47	47KΩ	½	77213	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
48	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Diode Load
49	10 Meg.	½	77274	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
50	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
51	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Plate Load
52	10 Meg.	½	77274	BTS-10 Meg.	Br.-Blk.-Blue Phase Inverter Grid
53	1 Meg.	½	77218	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
54	2.2 Meg.	½	77270	BTS-2.2 Meg.	Red-Red-Grn. AVC Diode Load
55	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Output Grid
56	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Output Grid
57	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Output Grid
58	270Ω	2	77189	BW-2-270	Red-Vi.-Br. Output Cathode
59	2700Ω	4.7	77243	AB-3000	Filter
60	1000Ω	2	77304	BT-2-1000	Br.-Blk.-Red "

Note 1-Some models use 220KΩ in this application.
Note 2-Not used in models using 220KΩ in #44.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	FARNSWORTH PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
61A	117V AC @ .65A	580V CT @ .075A	5.2V AC @ 2.0A	6.5V AC @ 3.0A	94104	P-6120	T22R04	P-2952
B					94224*			

* Alternate 50~ transformer.

TRANSFORMER (OUTPUT)

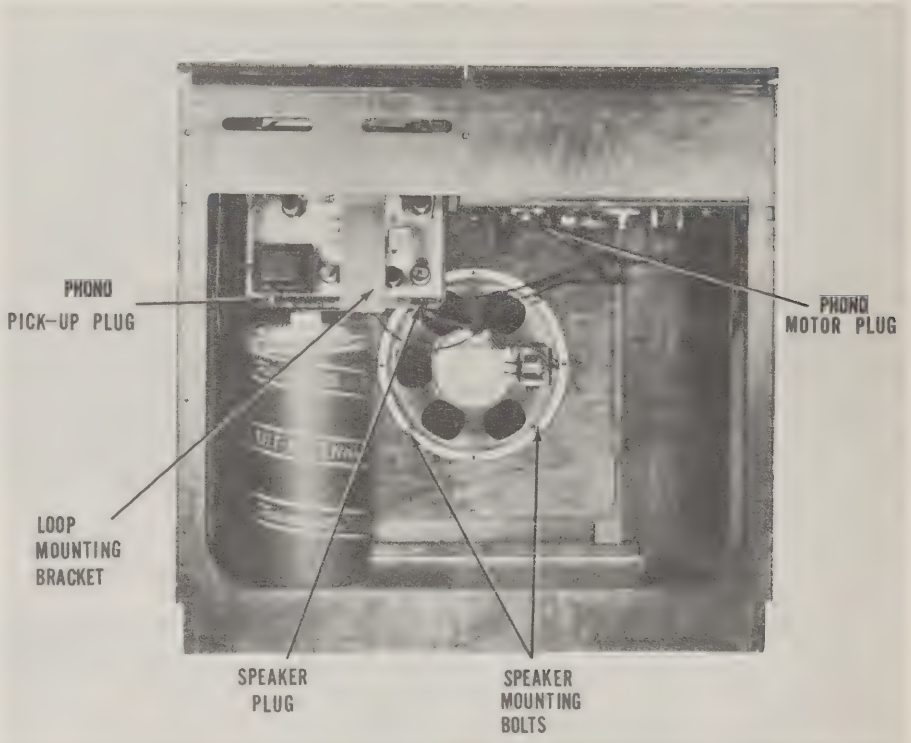
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FARNSWORTH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
62	13000Ω CT	4.1Ω	240Ω CT	.4Ω	94195	A-3870	T22356	A-2901	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	FARNSWORTH PART No.	JENSEN PART No.		
63	PM	4.1Ω	81126	ST-101† Mod. P12-T		†Replace output transformer to match 8Ω voice coil.
	CONE DIA.	VC DIA.				
64	11-3/4"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

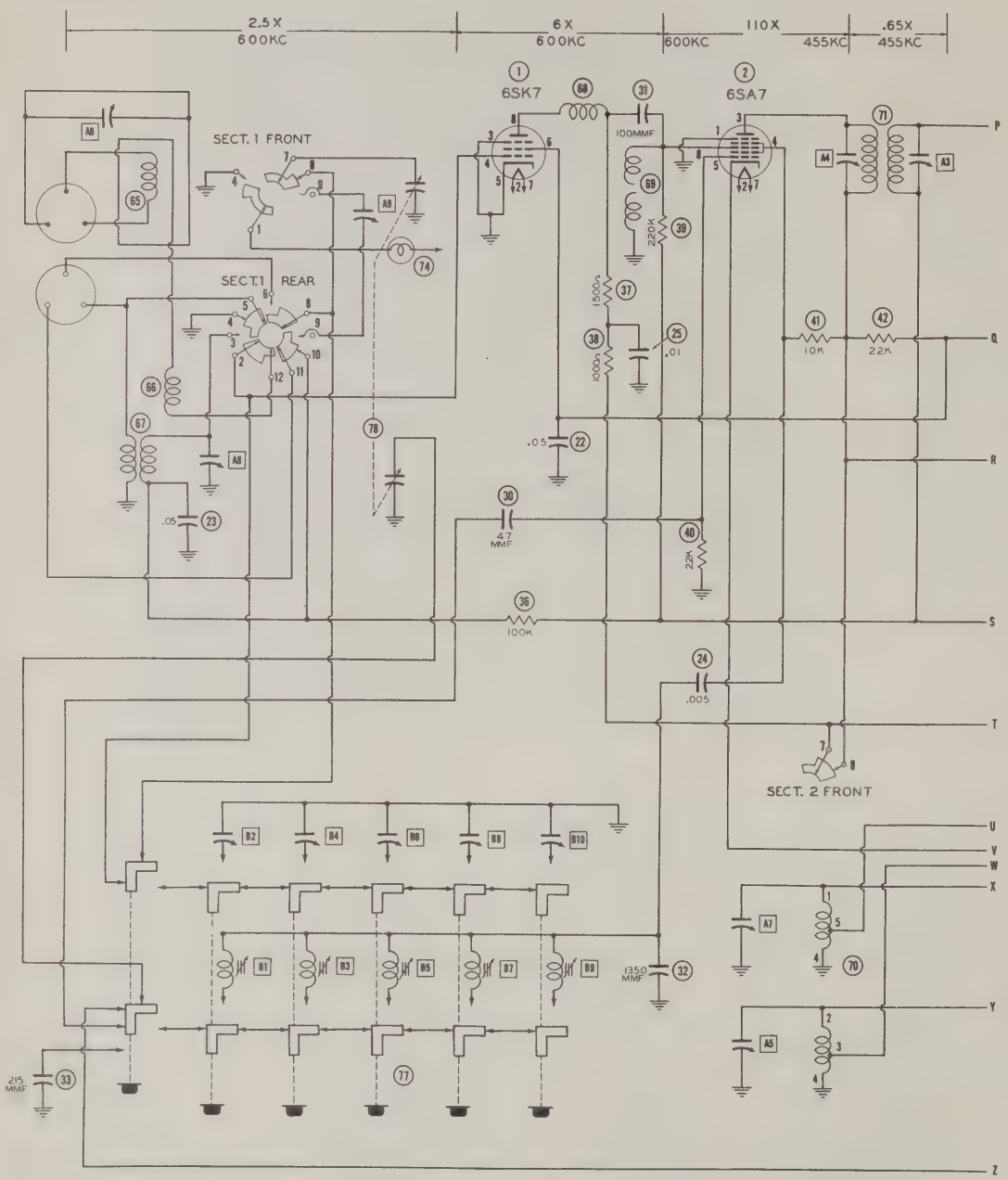
DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove two plugs from loop antenna.
3. Remove four Phillips head screws holding loop antenna in cabinet. Remove loop from cabinet.
4. Remove phono-motor plug from socket on bottom of record changer.
5. Remove phono-pickup plug from chassis.
6. Remove speaker plug from chassis.
7. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.



FARNSWORTH MODELS EK-081, EK-082, EK-083, EK-681 PAGE 5

DATE 10/47 SET #26 FOLDER #4716-13



RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	6.5VAC	0V.	-.3VDC	0V.	87VDC	0V.	145VDC
2	6SA7	0V.	6.5VAC	167VDC	95VDC	-7.5VDC§	0V.	0V.	-.2VDC
3	6SK7	0V.	0V.	0V.	-.3VDC	6VDC	87VDC	6.5VAC	167VDC
4	6BQ7	0V.	-.45VDC	0V.	-.48VDC	-.45VDC	70VDC	0V.	6.5VAC
5	6BQ7	0V.	-.45VDC	0V.	-.4VDC	-.2VDC	67VDC	0V.	6.5VAC
6	6V6GT	0V.	6.5VAC	280VDC	200VDC	0V.	280VDC	0V.	12.5VDC
7	6V6GT	0V.	6.5VAC	280VDC	200VDC	0V.	0V.	0V.	12.5VDC
8	5Y3GT	0V.	280VDC	0V.	290VAC	0V.	290VAC	0V.	280VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

...measured values listed above ... values for an average operation ... rather than an absolute value. ... borne in mind that it is possible ... duce so many variables into the ... ent operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. ... made inoperative by connecting negative ...3 volts to the AVC line.

IF=455KC

BAND -PHONO SWITCH SHOWN IN BROADCAST POSITION.
BANDSWITCH VIEWED FROM SHAFT END.

SWITCH SEQUENCE:
(FROM EXTREME COUNTER-CLOCKWISE POSITION)

1 PHONO
2 BROADCAST
3 SHORTWAVE

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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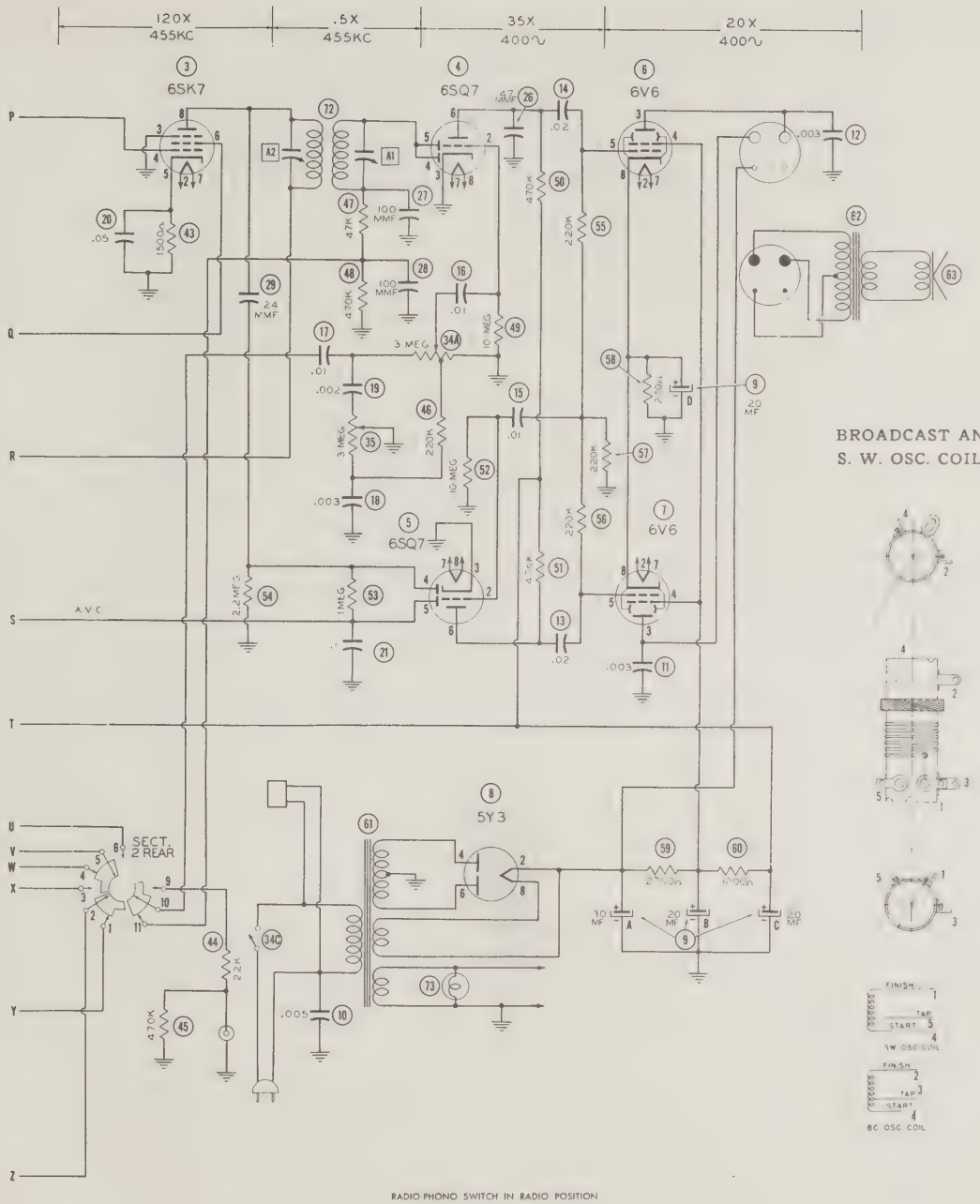
4 716-13



RADIO PHONO SWITCH IN RADIO POSITION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	[illegible]	[illegible]	[illegible]	[illegible]	3.5 Meg.	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	.1[illegible]	[illegible]	20KΩ	20KΩ	.5Ω	0Ω	3.5 Meg.
3	6SK7	[illegible]	0Ω	0Ω	3.3 Meg.	1500Ω	100KΩ	.1Ω	80KΩ
4	[illegible]	[illegible]	10 Meg.	0Ω	500KΩ	500KΩ	550KΩ	0Ω	.1Ω
5	6SQ7	[illegible]	10 Meg.	0Ω	2 Meg.	3 Meg.	550KΩ	0Ω	.1Ω
6	6V6GT	1 M.	.1[illegible]	60KΩ	80KΩ	410KΩ	80KΩ	0Ω	280Ω
7	6V6GT	INF.	.1[illegible]	[illegible]	[illegible]	40 K	INF.	[illegible]	[illegible]
8	5Y3GT	INF.	40K	INF.	120[illegible]	INF.	120K	INF.	[illegible]

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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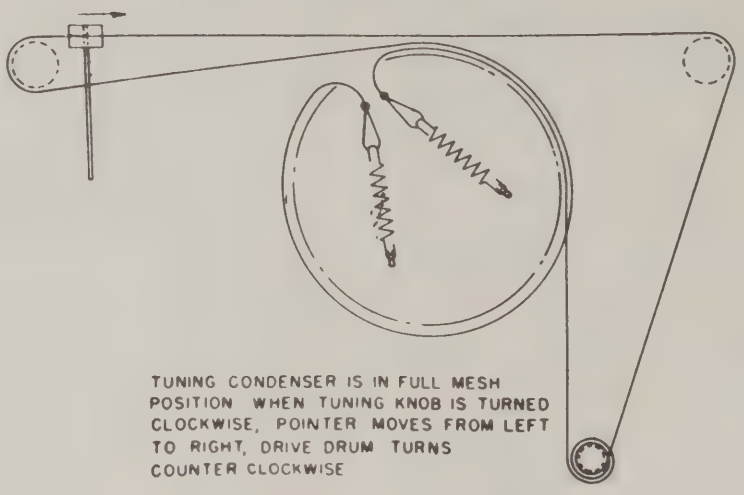
DIAL STRINGING



TUNING CONDENSER IS IN FULL MESH POSITION WHEN TUNING KNOB IS TURNED CLOCKWISE, POINTER MOVES FROM LEFT TO RIGHT, DRIVE DRUM TURNS COUNTER CLOCKWISE

PUSHBUTTON ADJUSTMENTS

Range of buttons reading from right to left is: Manual Tuning with first button, 750-1600KC, 650-1450KC, 650-1450KC, 600-1350KC, 550-1250KC.

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Make up a list of stations ranging from high to low frequency making certain each station falls within range of the button to be set up.
3. Remove pushbutton escutcheon plate.
4. Push in first pushbutton shaft on right and manually tune in first station to be set up.
5. Push in second button shaft from right and adjust B_1 to tune in station. Ascertain whether or not you have the correct station by alternately pushing in dial button shaft and then pushbutton shaft.
6. Adjust B_2 for maximum volume.
7. Set up the remaining buttons by following the same procedure outlined above.
8. Replace escutcheon plate.

FLUSH WALL MODEL 5P

FLUSH WALL MODEL 5P

FLUSH WALL MODEL 5P

TRADE NAME	Flush Wall Model 5P
MANUFACTURER	Flush Wall Radio Co., 58 E. Park St., Newark 2, N.Y.
TYPE SET	AC-DC Superheterodyne Receiver
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT or 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	530-1620KC RATING .250 Amps.@ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD.	High side to ext. ant. lead. Low side to B-.	1500KC	1500KC	"	A5	Adjust for maximum output.
3	200MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET #26 FOLDER #4716-14

PARTS LIST AND DESCRIPTIONS

FLUSH WALL MODEL 5P

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FLUSH WALL PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4A	Power Output	35L6GT	35L6GT	7AC	
B	" "	50L6	50L6	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	FLUSH WALL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	40	150		2N514	M-2x40-150	TA-240	PRSA150-40-20	BRD4215	Filter
B	20	150							"
7	.05	400		TP426	MPH-4-1	TC-15	484-05	DT4S5	Line Filter
8	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolation Trap
9	.03	400		TP424	S-4-03	TC-13	484-03	DT4S3	Output Plate Bypass
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	" "
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
14	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter
15	50	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
16	15	500			MO.5-415	MS-415	1468-000015		Fixed Trimmer
17	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Ext. Ant. Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	FLUSH WALL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	1 Meg.	½		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

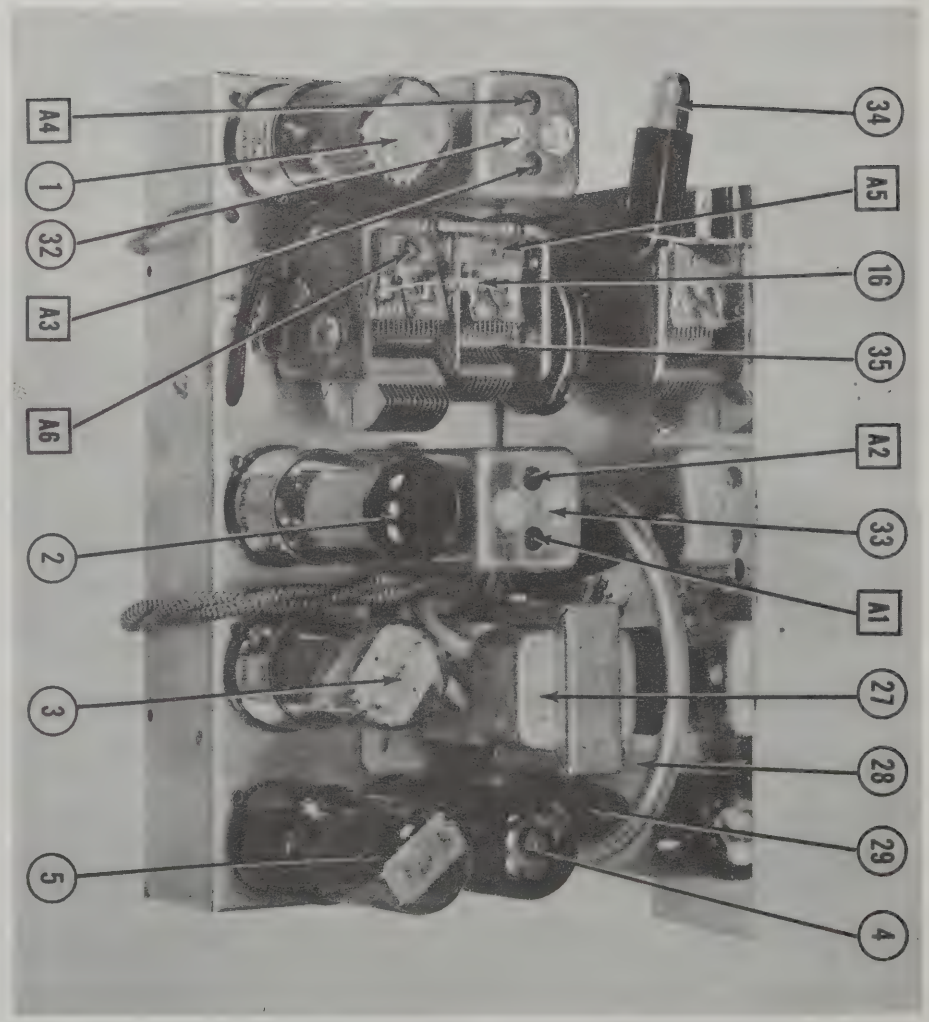
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FLUSH WALL PART No.	IRC PART No.	
19	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
20	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
21	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid - See Note
22	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
25	200KΩ	½		BTS-220K	Red-Blk.-Yl. Line Isolation
26	2200Ω	1		BTA-2200	Red-Red-Red Filter

Note-Some models use 10 Meg. in this application. IRC replacement BTS-10 Meg.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FLUSH WALL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
27	2050Ω	3.5Ω	215Ω	.9Ω	1143	A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FLUSH WALL PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
28	PM	3.5Ω	6693			
	CONE DIA.	VC DIA.				
29	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

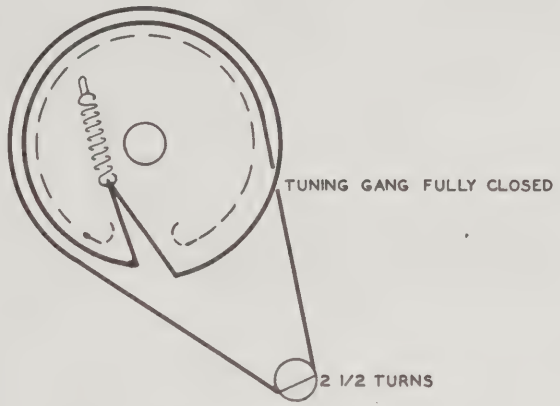
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FLUSH WALL PART No.	MEISSNER PART No.	
30	Ant. Coil	55Ω	4.5Ω		14-1026	
31	Osc. Coil	.5Ω	4Ω		14-1040	
32	Input IF	16Ω	16Ω		16-6658	
33	Output IF	15Ω	15Ω		16-6660	

DIAL LIGHT

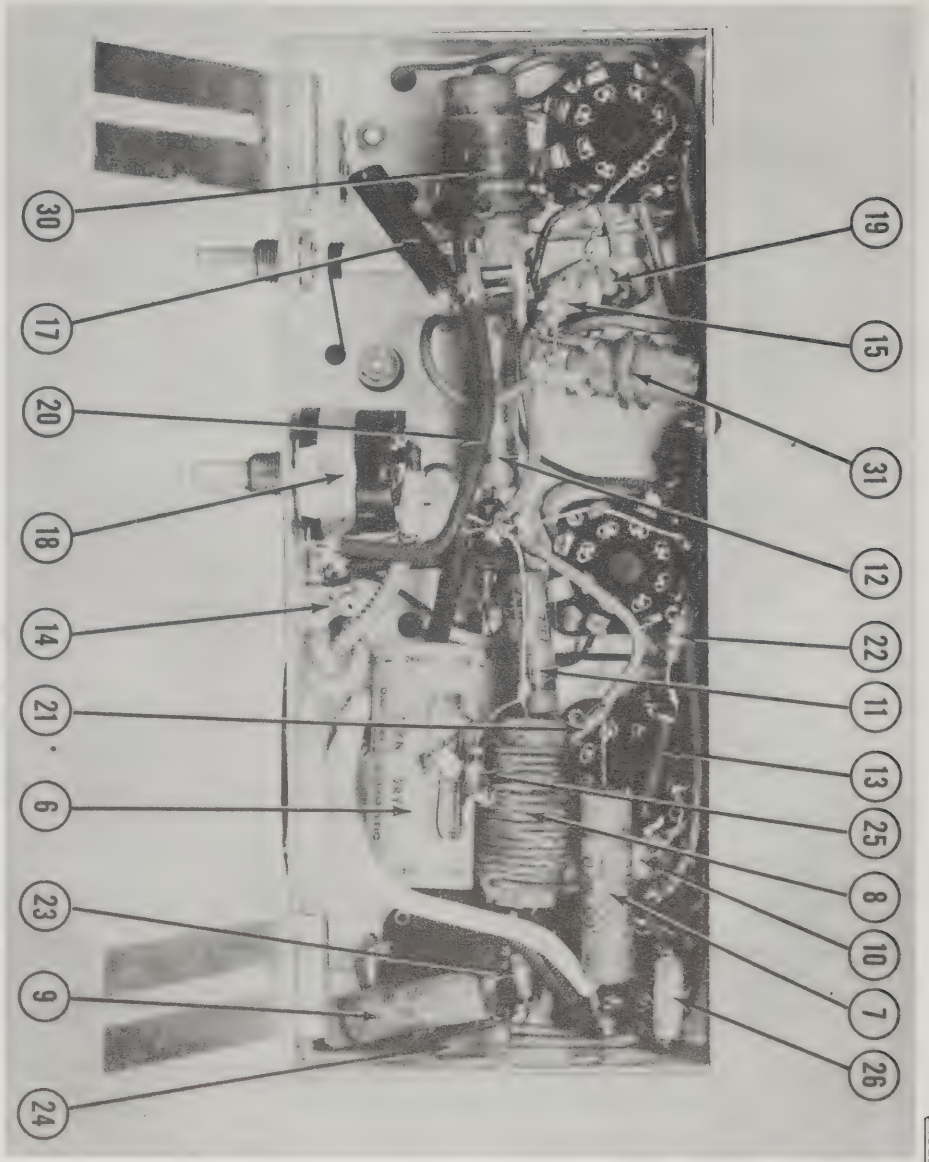
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FLUSH WALL PART No.		
34	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

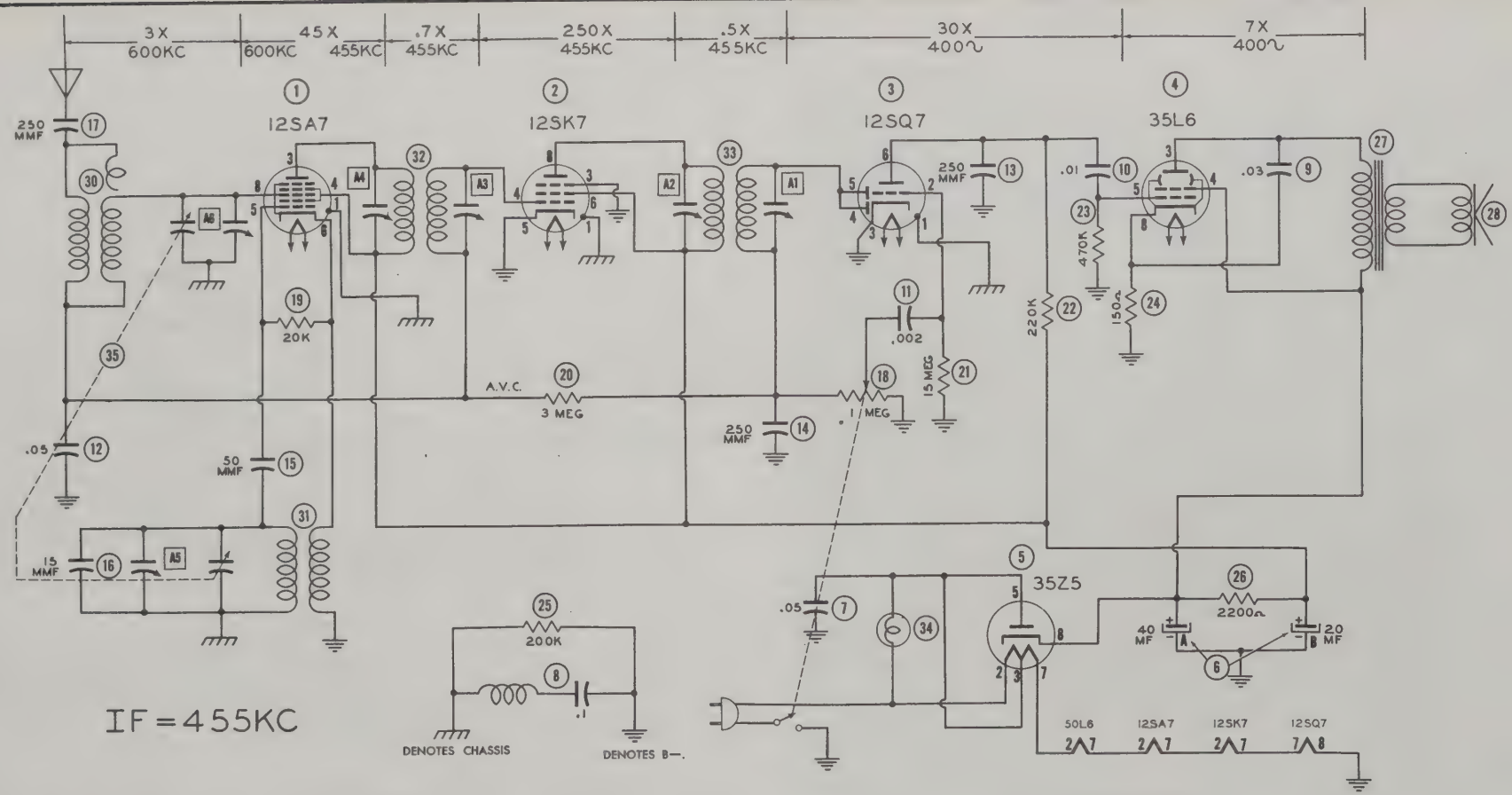
ITEM No.	PART NAME	FLUSH WALL PART No.	NOTES
35	2 Gang Var. Cap.		33-450MMF, 40-208MMF



CHASSIS—BOTTOM VIEW



FLUSH WALL MODEL 5P



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	44VAC	78VDC	78VDC	-5.8VDC§	0V.	28VAC	-.8VDC
2	12SK7GT	0V.	29VAC	0V.	-.8VDC	0V.	78VDC	14VAC	78VDC
3	12SQ7GT	0V.	-.9VDC	0V.	-.8VDC	-.8VDC	62VDC	14VAC	0V.
4	35L6GT	0V.	82VAC	112VDC	78VDC	0V.	0V.	44VAC	4.5VDC
5	35Z5GT	0V.	117VAC	114VAC	78VDC	114VAC	0V.	82VAC	120VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	200KΩ	40Ω	50KΩ	50KΩ	22KΩ	.5Ω	26Ω	4 Meg.
2	12SK7GT	200KΩ	26Ω	0Ω	4 Meg.	0Ω	50KΩ	13Ω	50KΩ
3	12SQ7GT	200KΩ	15 Meg.	0Ω	1.2 Meg.	1.2 Meg.	270KΩ	13Ω	0Ω
4	35L6GT	INF.	70Ω	50KΩ	50KΩ	520KΩ	0Ω	40Ω	150Ω
5	35Z5GT	INF.	102Ω	100Ω	50KΩ	100Ω	INF.	70Ω	50KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4716-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GEN. TELEVISION MODEL
25B5 BATTERY OPERATED

GEN. TELEVISION MODEL
25B5 BATTERY OPERATED

GENERAL TELEVISION MODEL 25B5

TRADE NAME	General Television Model 25B5
MANUFACTURER	General Television and Radio Corp., 2701-17 Lehmann Court, Chicago 14, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output, 117Z6GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 7½V "A" Supply and 90V "B" Supply in Pack Form
RATING	.220 Amps. @ 117V AC 53MA @ 7½V and 12 MA @ 90V.
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation.
2		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-15

PARTS LIST AND DESCRIPTIONS

GENERAL TELEVISION MFG. CORP.

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GEN. TELE. PART No.	STANDARD REPLACEMENT		
1	Converter	1LA6	1LA6	7AK	
2	IF Amp.	1LN5	1LN5	7AO	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	3LF4	3LF4	6BB	
5	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GEN. TELE. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	35	150	3-5	TCD48	DY-3x40-150	TA-303	PRSA150-40-40	EZ44315C‡	Filter - Red
B	35	150		TC48					" - "
C	35	150					PRS150-40		" - "
7A	70	25	3-6	TC2501	M-100-25	UHC-102	PRS25-100	BRH251	Fil. Bypass
B	70	25		TC2501	M-100-25	UHC-102	PRS25-100	BRH251	" "
8	.1	600		TP418	MPH-6-1	TC-1	684-.1	DT6P1	Line Filter
9	.25	200		TP430	S-4-25	TC-2	484-.25	DT4P25	Fil. Bypass
10	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
11	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
12	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
13	.02	600		TP412	S-6-02	TC-12	684-02	DT6S2	AVC Filter
14	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	IF Grid Filter
15	.02	600		TP412	S-6-02	TC-12	684-02	DT6S2	Conv. Screen Bypass
16	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
17	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter
18	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid

‡Do not use bypass section.

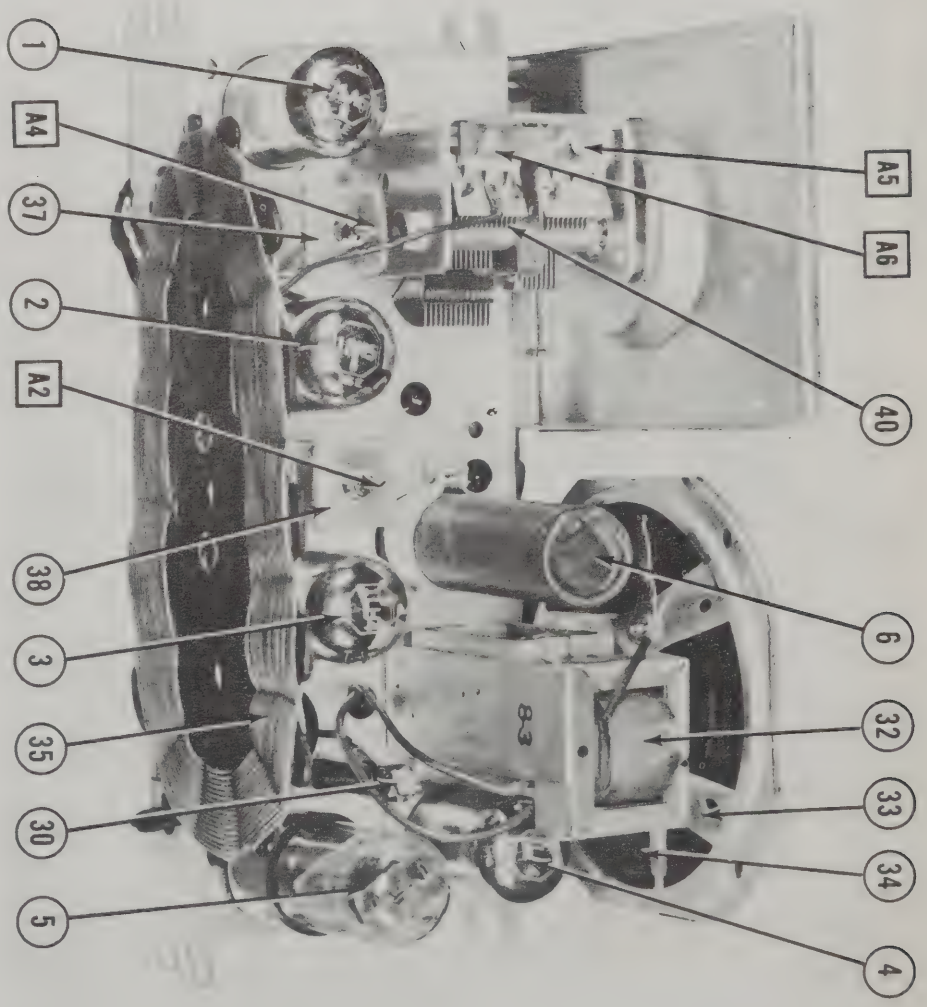
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	GEN. TELE. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	2 Meg.	1	20-4	MR55	D13-139	M-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M24	45	SW-A4	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GEN.TELE. PART No.	IRC PART No.	
20	25KΩ	1/3		BTS-270K	Red-Grn.-Yl. Oscillator Grid
21	47KΩ	1/3		BTS-47K	Yl.-Vi.-Or. Screen Dropping
22	6 Meg.	1/3		BTS-5.6 Meg.	Blue-Blk.-Grn. IF Grid
23	6 Meg.	1/3		BTS-5.6 Meg.	Blue-Blk.-Grn. AVC Network
24	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
25	10 Meg.	1/3		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
27	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
28	680Ω	1/3		BTS-680	Blue-Gray-Br. Filament String
29	2000Ω	1		BTA-2200	Red-Blk.-Red Filter
30	2300Ω	10		AB-2250	Filament String
31	10Ω	1/3		BW-½-10	Br.-Blk.-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA GEN. TELE. PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
32	7000Ω	3.1Ω	430Ω	.5Ω		A-3273*	T22S47*	A-2931*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA GEN. TELE. PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
33	FIELD PM	VC IMP. 3.1Ω	8-3	ST-10S† Mod. P5-X		†Fabricate new mounting bracket.
34	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

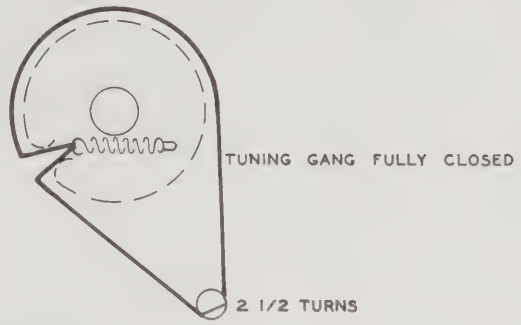
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA GEN. TELE. PART No.	REPLACEMENT DATA MEISSNER PART No.
35	Loop Ant.		1.5Ω	32.5A	
36	Osc. Coil	1.5Ω	6Ω	14-1	14-1040
37	Input IF	10Ω	10Ω	15-3	16-6668
38	Output IF	10Ω	10Ω	15-3	16-6669

BATTERIES

ITEM No.	VOLTAGE	GEN. TELE. PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
39	7½V "A" 90V "B"				#753 or #734	

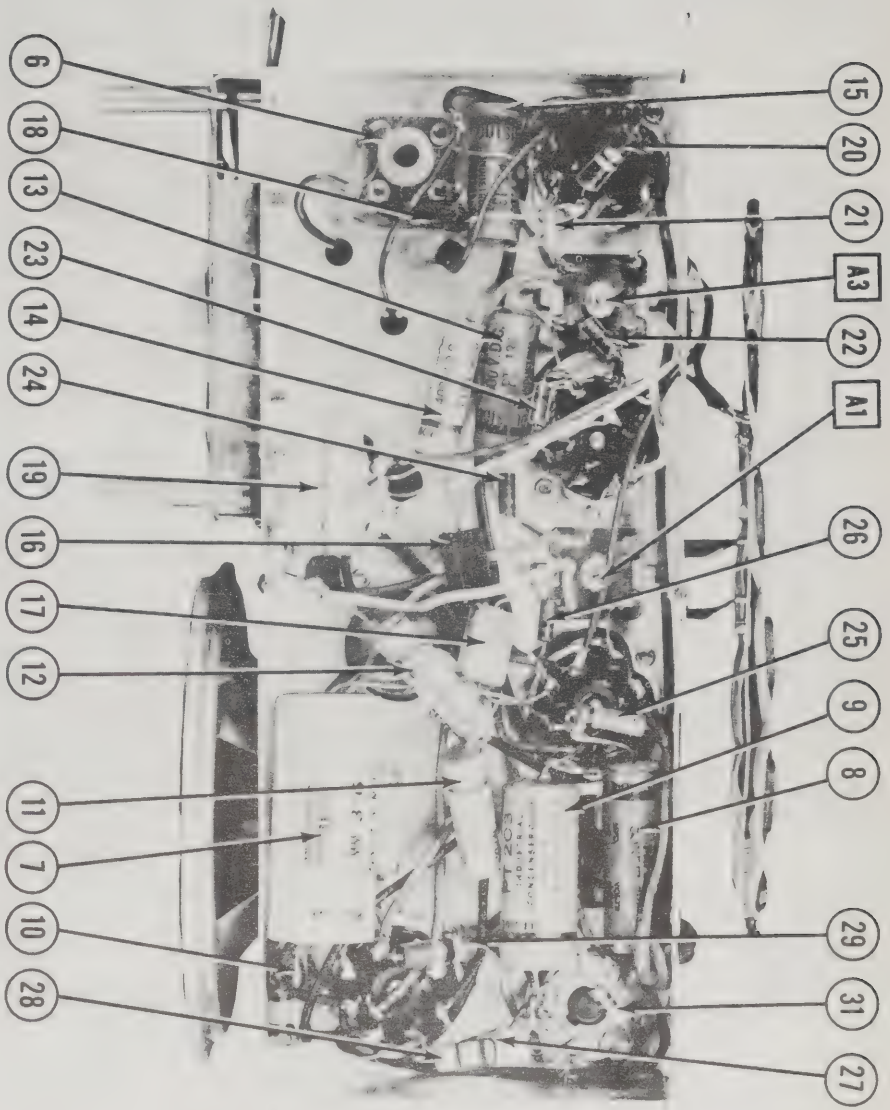
MISCELLANEOUS

ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
40	2 Gang Var.Cap.	6-1A	(25-474MMF, 33-191MMF)



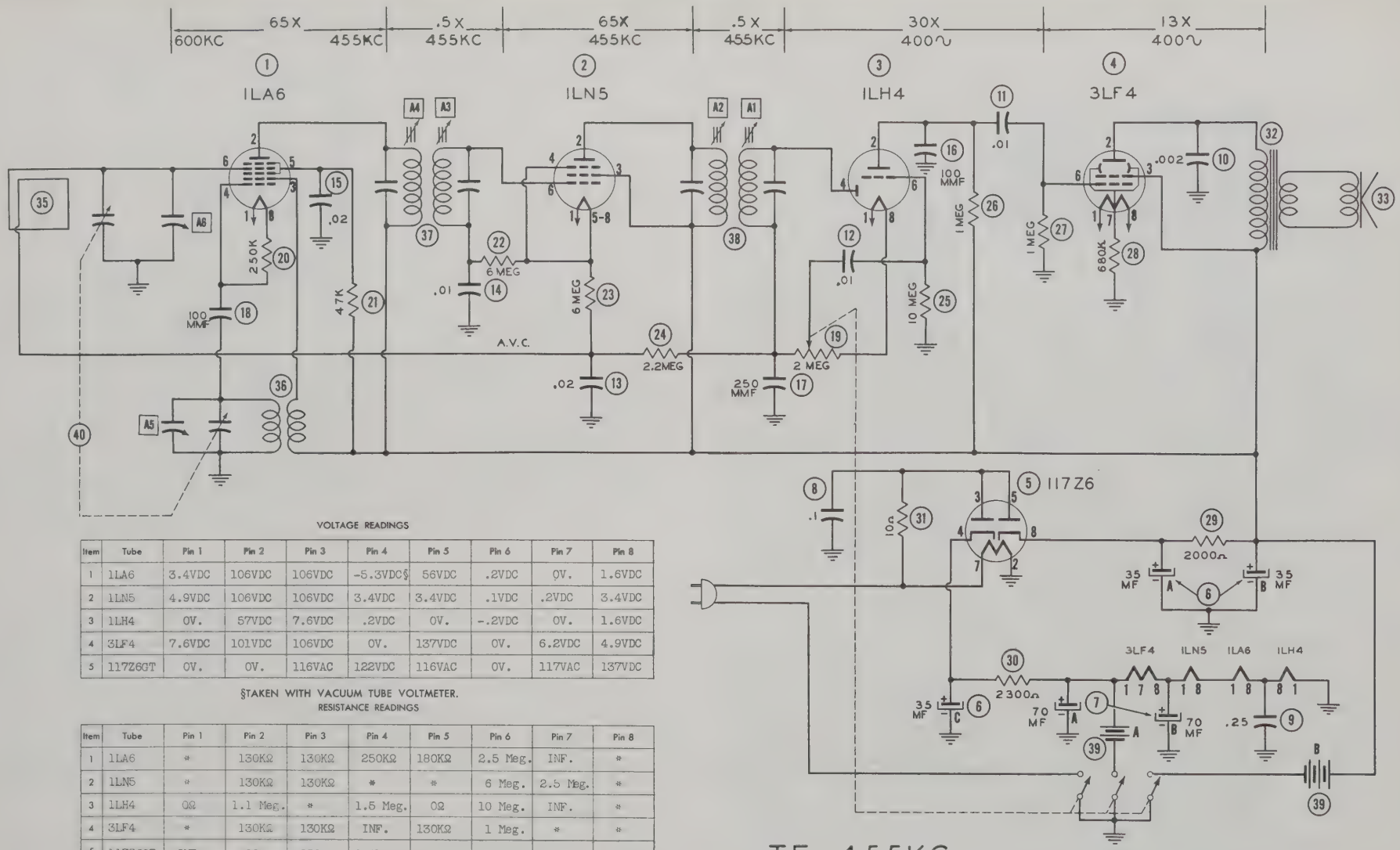
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GENERAL TELEVISION CORP.

DATE 10/47 SET # 2K FOLDER #4716-15



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	3.4VDC	106VDC	106VDC	-5.3VDC§	56VDC	.2VDC	0V.	1.6VDC
2	1LN5	4.9VDC	106VDC	106VDC	3.4VDC	3.4VDC	.1VDC	.2VDC	3.4VDC
3	1LH4	0V.	57VDC	7.6VDC	.2VDC	0V.	-.2VDC	0V.	1.6VDC
4	3LF4	7.6VDC	101VDC	106VDC	0V.	137VDC	0V.	6.2VDC	4.9VDC
5	117Z6GT	0V.	0V.	116VAC	122VDC	116VAC	0V.	117VAC	137VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	*	130KΩ	130KΩ	250KΩ	180KΩ	2.5 Meg.	INF.	*
2	1LN5	*	130KΩ	130KΩ	*	*	6 Meg.	2.5 Meg.	*
3	1LH4	0Ω	1.1 Meg.	*	1.5 Meg.	0Ω	10 Meg.	INF.	*
4	3LF4	*	130KΩ	130KΩ	INF.	130KΩ	1 Meg.	*	*
5	117Z6GT	INF.	0Ω	250Ω	2.2KΩ	250Ω	INF.	240Ω	130KΩ

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4716-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting high side of volume control to low side.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

TRADE NAME Gilfillan, Models 86C, 86P, 86U
MANUFACTURER Gilfillan Bros. Inc., 1815 Venice Blvd., Los Angeles, Calif.
TYPE SET AC Operated 3 Band Superheterodyne Receiver with Loop Antenna (Model 86P has Automatic Record Changer)
TUBES (EIGHT) Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6SQ7 Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY 110-120 Volts AC **RATING** .820 Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1600KC **SHORT WAVE** 6-12MC. 12-18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer 1-7/8" from left edge of dial backplate.
In Steps 1 through 9 ant. switch should be in ant. position (to right). In Step 10 the switch should be in loop position (to left).
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC (1st position clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	DIRECT	High side to ant. terminal on ant. terminal strip. Low side to chassis.	455KC	"	"	"	A5	Adjust for minimum output.
3	.01 MFD.	"	1500KC	"	7-3/8" from left edge of dial backplate.	"	A6	Adjust for maximum output.
4	.01 MFD.	"	"	"	Tune for maximum output.	"	A7,A8.	" " " "
5	.01 MFD.	"	600KC	"	"	"	A9	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 and 5 until no further increase in output can be made.
6	400Ω carbon res.	"	12MC	SW I (2nd position clockwise)	7-13/16" from left edge of dial backplate.	"	A10, A11,A12	Adjust for maximum output
7	"	"	6MC	"	2-1/16" from left end of dial backplate.	"	A13,A14, A15	Adjust for maximum output. Repeat Steps 6 & 7 until no further increase in output is obtained.
8	"	"	18MC	SW II (3rd position clockwise)	7-15/16" from left end of dial backplate.	"	A16,A17, A18	Adjust for maximum output.
9	"	"	12MC	"	2" from left edge of dial backplate.	"	A19,A20, A21	Adjust for maximum output. Repeat Steps 8 & 9 until no further increase in output is obtained.
10		Loop	1500KC	BC	Tune for maximum output.	"	A22	Ant. switch in loop position (to left). Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output

PUSHBUTTON ADJUSTMENTS

1. Turn set on and allow it to warm up for about 15 minutes.
2. Make up a list of stations desired to be set up.
3. Remove buttons by pulling out and loosen button shaft set screws.
4. Manually tune in first station and push any button shaft in completely.
5. Holding shaft in, tighten set screw firmly.
6. Check accuracy of setting by detuning with manual tuning control and retuning with pushbutton. If setting is off repeat Steps 3 through 6.
7. To set up the remaining buttons follow the same procedure as outlined above.

GILFILLAN MODELS
86C, 86P, 86U

GILFILLAN MODELS
86C, 86P, 86U

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DATE 10/47 SET #26 FOLDER #4716-16

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GILFILLAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SG7	6SG7	[illegible]	
2	Converter	6SA7	6SA7	[illegible]	
3	IF Amp.	6SK7	6SK7	[illegible]	
4	Det.-AVC-AF	6SQ7	6SQ7	[illegible]	
5	Phase Inv.	6SQ7	6SQ7	[illegible]	
6	Power Output	6V6GT	6V6GT	7AC	
7	" "	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GILFILLAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	20	475	86-25	FP238	DY-2x30-450	WR-25		UP2222451†	Filter
B	30	450				EL-3			"
10	8	450		TC71	M-8-450	UT-8	PRSA450-8	BR845	Screen Bypass
11	.1	600		TP418	MPH-4-1	TC-1	684-.1	DT6P1	Line Filter
12	.1	600		TP418	MPH-4-1	TC-1	684-.1	DT6P1	" "
13	.003	600		TP406	S-6-003	TC-23	684-003	DT6D3	Output Plate Bypass
14	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	Audio Coupling
15	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	" "
16	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	" "
17	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Tone Comp.
18	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
19	.1	600		TP418	S-6-1	TC-1	684-.1	DT6P1	RF Bypass Pwr. Supply
20	.1	600		TP418	S-6-1	TC-1	684-.1	DT6P1	Screen Bypass
21	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
22	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	" "
23	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass Cer.
24	75	500		MC230	MOS.5-47	1FM-475	1468-0003	5W5Q7	Fixed Padder Cer.
25	300	500		MC241	MO.5-33	MS-33	1468-000075	5W5T3	" " "
26	50	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid
27	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling Cer.
28	5	500		MC205	MO.5-55	MS-55	1468-000005	5W5V5	" " "
29	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" " "

†Omit one section and parallel two sections to obtain desired capacity.

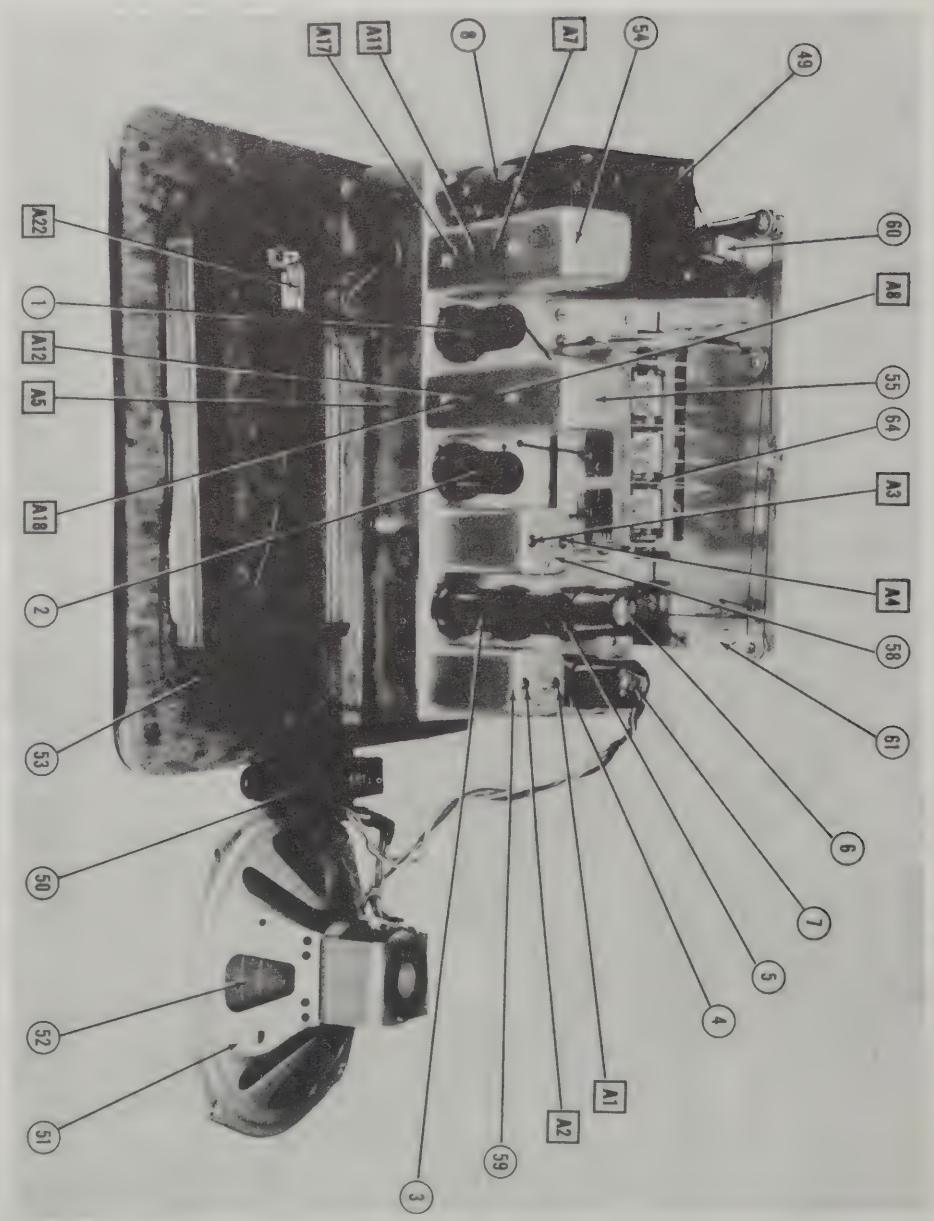
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GILFILLAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
30A	500KΩ	½	A10-23469	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 30A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
31A	100KΩ	½	A10-23468	MR41	D11-128	M-48-S	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 31A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GILFILLAN PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
32	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
33	120KΩ	½		BTS-120K	Br.-Red-Yl. AVC Network
34	120KΩ	½		BTS-120K	Br.-Red-Yl. Converter Grid
35	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
36	82KΩ	½		BTS-82K	Gray-Red-Or. IF Grid
37	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
38	10KΩ	10		AB-10K	Screen Dropping
39	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
40	56KΩ	½		BTS-56K	Grn.-Blue-Or. AF Plate Load
41	330KΩ	½		BTS-330K	Or.-Or.-Yl. Volume Control Shunt
42	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GILFILLAN PART No.	IRC PART No.	
43	100KΩ	½		BTS-100K	Br.-Blk.-Grn. Phase Inverter Cathode
44	100KΩ	½		BTS-100K	Br.-Blk.-Grn. Phase Inverter Plate Load
45	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid
46	220KΩ	½		BTS-220K	Red-Red-Yl. " "
47	220Ω	1		BW-1-220	Red-Red-Br. Output Cathode
48	4000Ω	5		AB-4K	Filter-See Note

Note-Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GILFILLAN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
49	117V AC @ .82A	680V CT @ .110A	5.1V AC @ 2.0A	6.5V AC @ 2.7A	86-19	P-6013*	T22R05	P-2953*

*Mount vertically with universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GILFILLAN PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
50	11000Ω CT	3.5Ω	780Ω CT	.4Ω		A-3870	T22S56	A-2936‡	‡Drill one new mounting hole.

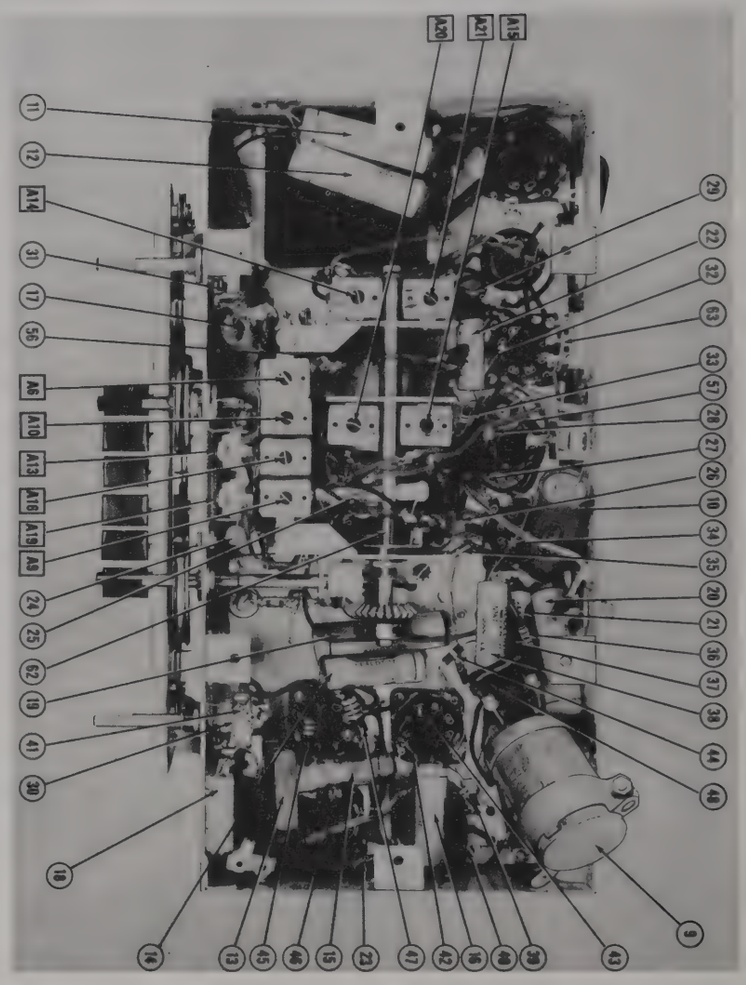
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GILFILLAN PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-179		
51A	1000Ω	3.5Ω	86U-2	Mod. F8-T		
B			86C/P-7			Alternate 10" speaker used in models 86P and 86C.
	CONE DIA.	VC DIA.				
52	7-3/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GILFILLAN PART No.	MEISSNER PART No.	
53A	Loop Ant.	0Ω	1.5Ω	86U-4		Item 53A used in Model 86U
B	" "		1.5Ω	86P-4		" 53B " " " " 86P
C	" "			86C-4		" 53C " " " " 86C
54ABC	Ant.Coil	72Ω	5Ω	86-13		Items 54A, 54B and 54C are in same can.
BSW	" "	.5Ω	.3Ω			
CSW	" "	.3Ω	.1Ω			
55ABC	RF Coil	75Ω	5Ω	86-14		Items 55A, 55B and 55C are in same can.
BSW	" "	3.5Ω	.3Ω			
CSW	" "	.5Ω	.1Ω			
56ABC	Osc.Coil	1.8Ω	12Ω	86-12		Items 56A, 56B and 56C are wound on same form.
BSW	" "		.3Ω			
CSW	" "		.1Ω			
57	Wave Trap		75Ω	86-36		
58	Input IF	30Ω	30Ω	86-34	16-6658	
59	Output IF	30Ω		86-35	16-6670	

CHASSIS—BOTTOM VIEW



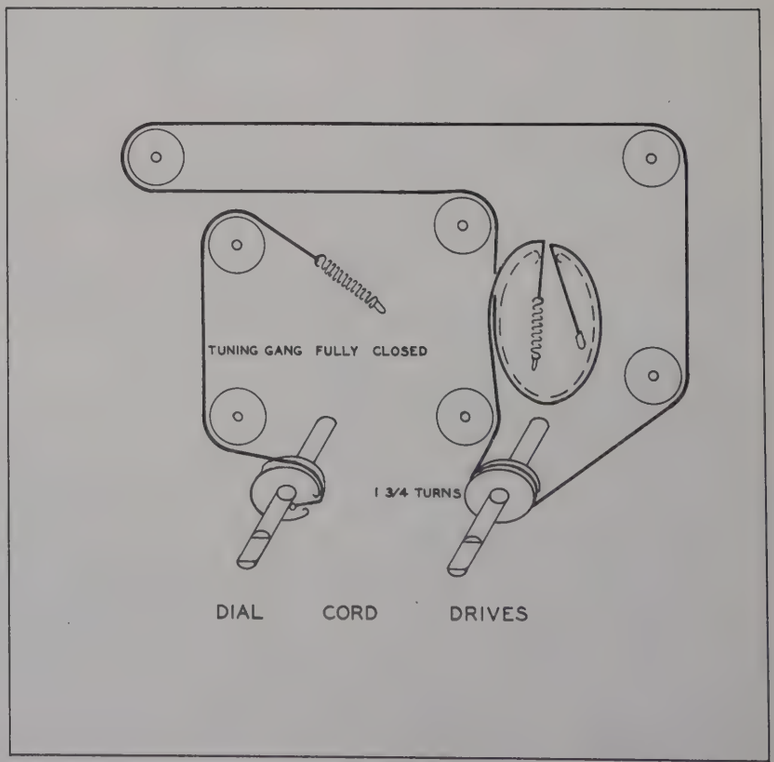
PARTS LIST AND DESCRIPTIONS (Continued)

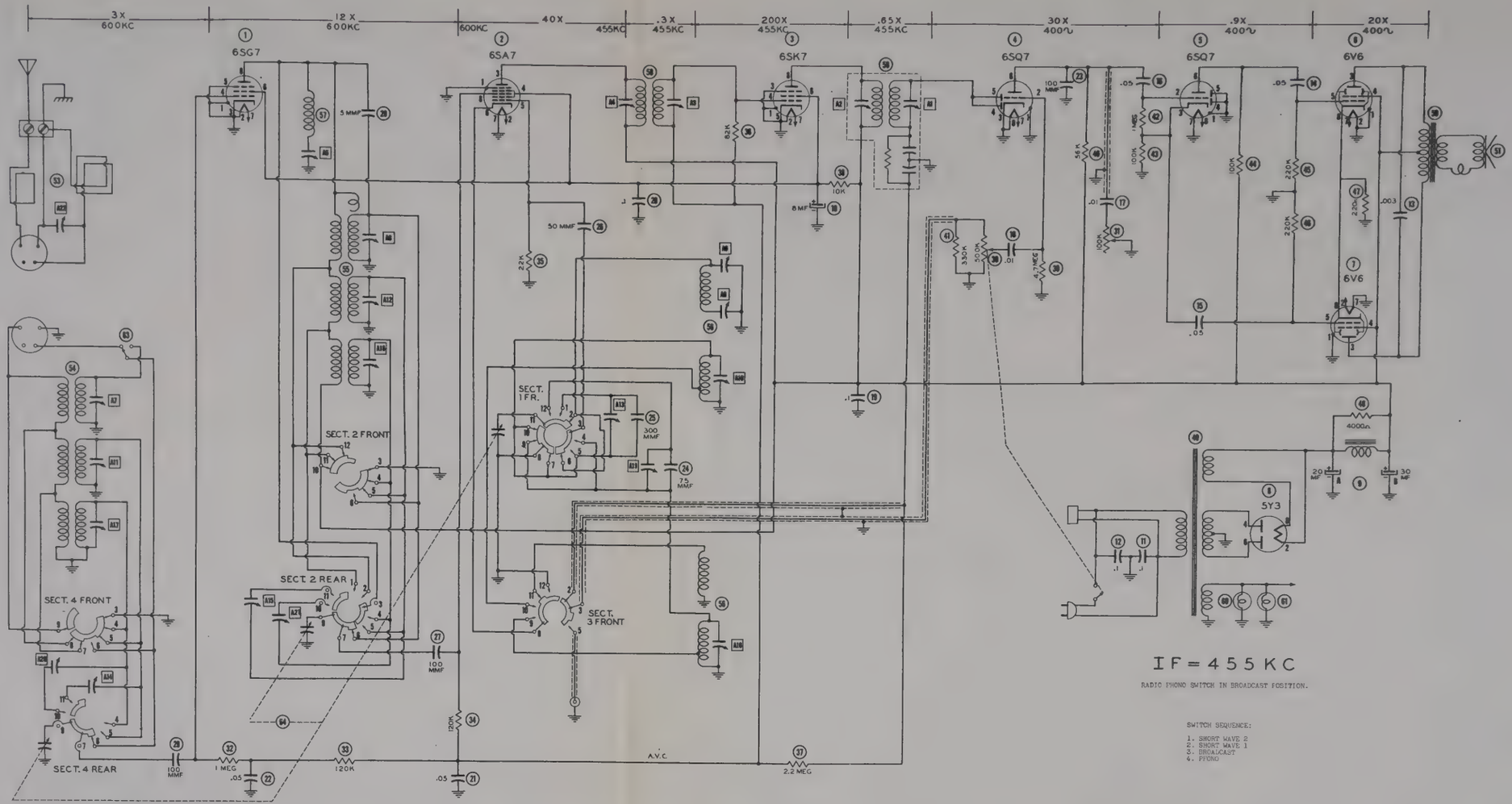
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GILFILLAN PART No.		
60	Screw	7.5	0.2	White			Type 50
61	"	"	"	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	GILFILLAN PART No.	NOTES
62	Switch	86-5	Wave Band-Phono
63	"		Loop Antenna
64	3 Gang Var. Cap.	86-15	452MMF each section





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SQ7	0V.	0V.	0V.	-.7VDC	0V.	95VDC	6.5VAC	260VDC
2	6SA7	0V.	6.5VAC	260VDC	95VDC	-8.5VDC§	0V.	0V.	-1VDC
3	6SK7	0V.	0V.	0V.	-.6VDC	0V.	95VDC	6.5VAC	260VDC
4	6SQ7	0V.	-.4VDC	0V.	-.5VDC	-.5VDC	180VDC	6.5VAC	0V.
5	6SQ7	0V.	12VDC	80VDC	0V.	0V.	185VDC	0V.	6.5VAC
6	6V6GT	0V.	0V.	255VDC	260VDC	0V.	0V.	6.5VAC	16.5VDC
7	6V6GT	0V.	6.5VAC	255VDC	260VDC	0V.	0V.	0V.	16.5VDC
8	5Y3GT	0V.	350VDC	0V.	340VAC	0V.	340VAC	0V.	350VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SQ7	0Ω	0Ω	0Ω	4 Meg.	0Ω	110KΩ	.1Ω	100KΩ
2	6SA7	0Ω	.1Ω	100KΩ	110KΩ	20KΩ	1.5Ω	0Ω	3 Meg.
3	6SK7	0Ω	0Ω	0Ω	2.8 Meg.	0Ω	110KΩ	.1Ω	100KΩ
4	6SQ7	0Ω	5 Meg.	0Ω	240KΩ	240KΩ	4.8 Meg.	.1Ω	0Ω
5	6SQ7	0Ω	1.2 Meg.	100KΩ	0Ω	0Ω	200KΩ	0Ω	.1Ω
6	6V6GT	0Ω	0Ω	100KΩ	100KΩ	220KΩ	0Ω	.1Ω	220Ω
7	6V6GT	0Ω	.1Ω	100KΩ	100KΩ	220KΩ	INF.	0Ω	220Ω
8	5Y3GT	INF.	100KΩ	INF.	105Ω	INF.	110Ω	INF.	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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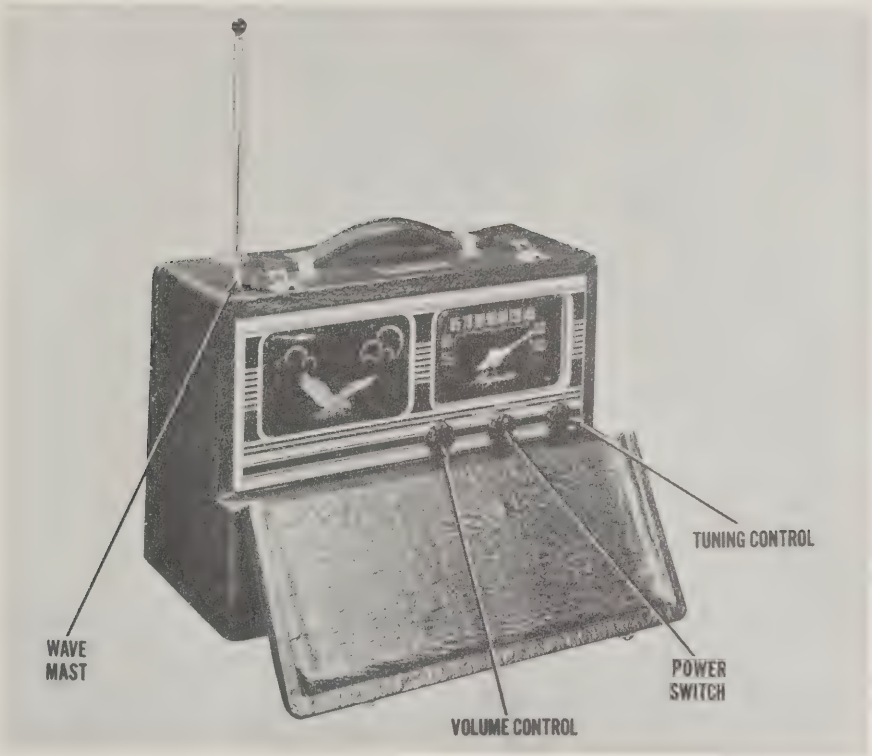
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4 7 16 - 16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

MAJESTIC MODEL 7P420
(Ch.4705) BATTERY OPERATED



MAJESTIC MODEL 7P420
(Ch.4705) BATTERY OPERATED

MAJESTIC MODEL 7P420

TRADE NAME	Majestic, Model 7P420 (Ch. 4705)
MANUFACTURER	Majestic Radio & Tel. Corp., ST. Charles, Ill.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES (SEVEN)	Types, 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output (Battery), 50B5 Power Output (AC), 35W4 Rectifier.
POWER SUPPLY RATING	110-120 Volts AC-DC or 9V "A" Supply and 90V "B" Supply .250 Amps. @ 117V AC or 48MA @ 9V DC and 14MA @ 90V DC
TUNING RANGE—BROADCAST	550-1670KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to Pin 6 (grid) 1R5. Low side to B-.	455KC	High freq. end of dial at a point of non-interference.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation, transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2		Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. The trimmer opposite A5 on the osc. section is a factory adjustment and need not be adjusted unless receiver will not calibrate.
3		"	"	Tune for maximum output.	"	A6	Adjust for maximum output. Replace in cabinet.
4		"	"	"	"	A7	Adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-17

PARTS LIST AND DESCRIPTIONS

MAJESTIC MODEL 7P450 (Cl. 47-5) BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1U4	1U4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1U4	1U4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output-Batt.	3Q4	3Q4	7BA	
6	Power Output-AC	50B5	50B5	7BZ	
7	Rectifier	35W4	35W4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	100	150	19-37		DSB-8040-150			EZ55515C†	Filter - Red
B	20	150							" - Blue
C	200	10			M-350-12			BRC1225	Fil. Bypass Yellow
9	.05	400	5-64	TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
10	.05	200	5-40	TP426	S-4-05	TC-15	484-05	DT4S5	Line Isolation
11	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
12	.002	600	6-184	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
13	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	AF Screen Bypass
14	.002	600	6-184	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
15	.05	200	5-40	TP426	S-4-05	TC-15	484-05	DT4S5	Fil. Bypass
16	.002	600	5-52	TP405	S-6-002	TC-22	684-002	DT6D2	IF Grid Filter
17	.001	600	5-50	TP404	S-6-001	TC-21	684-001	DT6D1	Osc. Feedback
18	.05	200	5-40	TP426	S-4-05	TC-15	484-05	DT4S5	Fil. Bypass
19	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
20	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	Tuning Cap. Isolation
21	.1	200	5-39	TP428	S-4-1	TC-1	484-.1	DT4P1	Fil. Bypass
22	6000			MC467	MW.5-26	1FM-26	1467-006	1D5D6	Output Plate Bypass
23	220		6-86	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass Cer.
24	220		6-86	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Filter Cer.
25	100		6-232	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid
26	220		6-86	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling Cer.
27	220		6-86	MC240					" " "
28	56								Ant. Pri. Shunt Cer.

†Parallel sections to obtain desired capacity-Omit bypass.

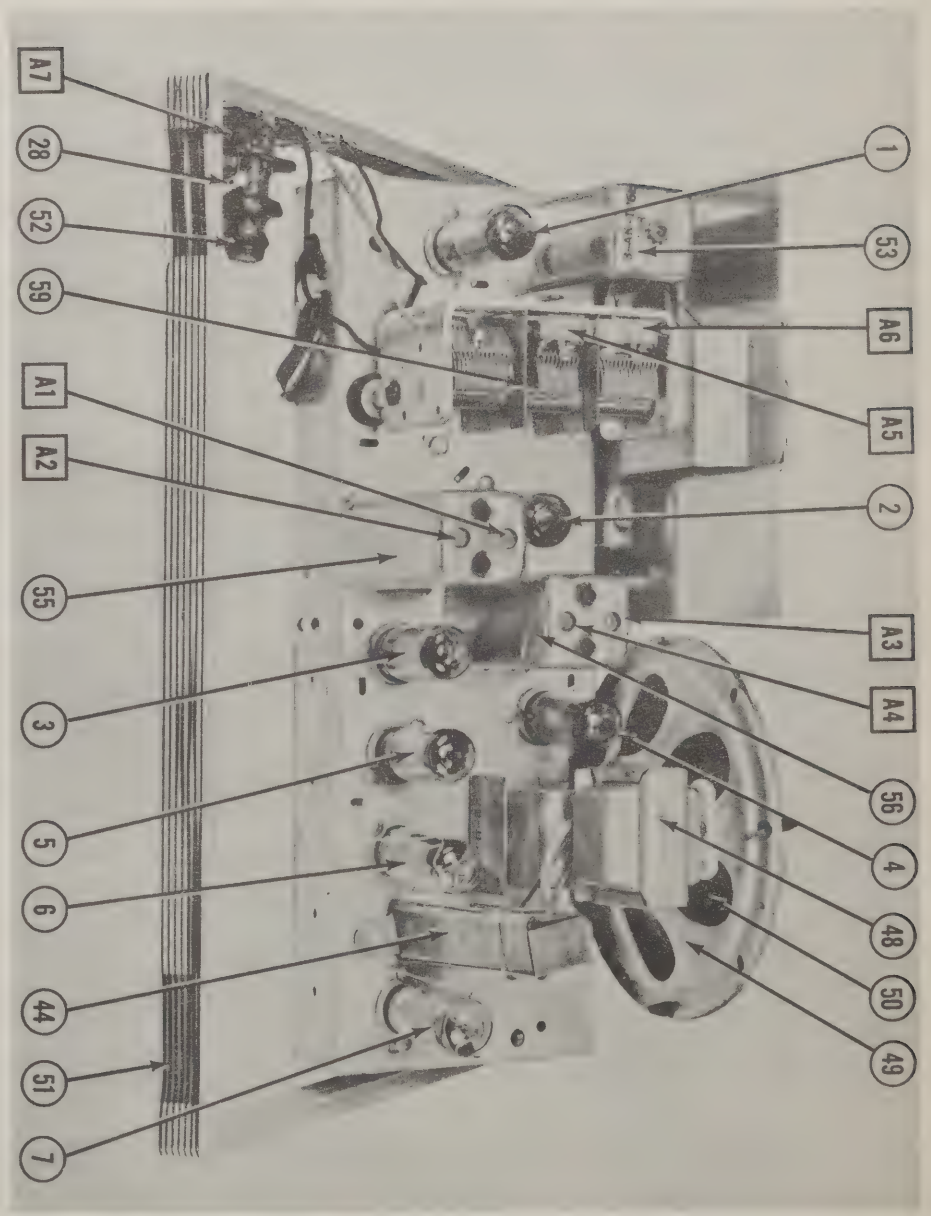
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
29A	500KΩ	½	13-17	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	IRC PART No.	IDENTIFICATION CODES
30	2.2 Meg.	¼	9-114	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
31	390Ω	¼	9-315	BW-½-390	Or.-White-Br. Filament String
32	3.3 Meg.	¼	9-221	BTS-3.3 Meg.	Or.-Or.-Grn. Converter Grid
33	100KΩ	¼	9-304	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
34	12KΩ	¼	9-305	BTS-12K	Br.-Red-Or. Converter Screen Dropping
35	1 Meg.	¼	9-255	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	470KΩ	¼	9-223	BTS-470K	Yl.-Vi.-Yl. IF Grid
37	47KΩ	¼	9-306	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
38	10 Meg.	¼	9-213	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
39	3.3 Meg.	¼	9-221	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
40	1 Meg.	¼	9-255	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
41	470KΩ	¼	9-223	BTS-470K	Yl.-Vi.-Yl. Output Grid
42	270Ω	¼	9-310	BW-½-270	Red-Vi.-Br. Filament String
43	56Ω	½	9-314	BW-½-56	Grn.-Blue-Blk. Output Cathode Line Dropping
44	220Ω				
45	27Ω	1/3	9-204	BW-½-27	Red-Vi.-Blk. Rectifier Ballast
46	1200Ω	1	9-216	BTA-1200	Br.-Red-Red Filter
47	5100Ω	2	9-317	BT-2-4700	Grn.-Br.-Red Bleeder

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA MAJESTIC PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
48	8000Ω tapped @ 2200Ω	3.6Ω	480Ω tapped @ 220Ω	.6Ω					

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA MAJESTIC PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
49	FIELD	VC IMP.	22-9	ST-1071 Mod. P5-V		†Fabricate new mounting bracket.
	PM	3.8Ω				
50	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
	4-3/4"	1/2"				

R F COILS

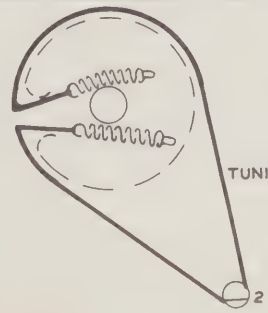
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MAJESTIC PART No.	REPLACEMENT DATA MEISSNER PART No.
51	Loop Ant.		.2Ω	20-12	
52	Ant. Coil	53Ω	3Ω		
53	RF Coil	75Ω	2.5Ω	3-126	
54	Osc. Coil	2.5Ω	6Ω	3-125	14-1040
55	Input IF	26Ω	27Ω	3-127	16-6666
56	Output IF	27Ω	26Ω	3-128	16-6667

BATTERIES

ITEM No.	VOLTAGE	MAJESTIC PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
57	9V "A" 90V "B"				#754	

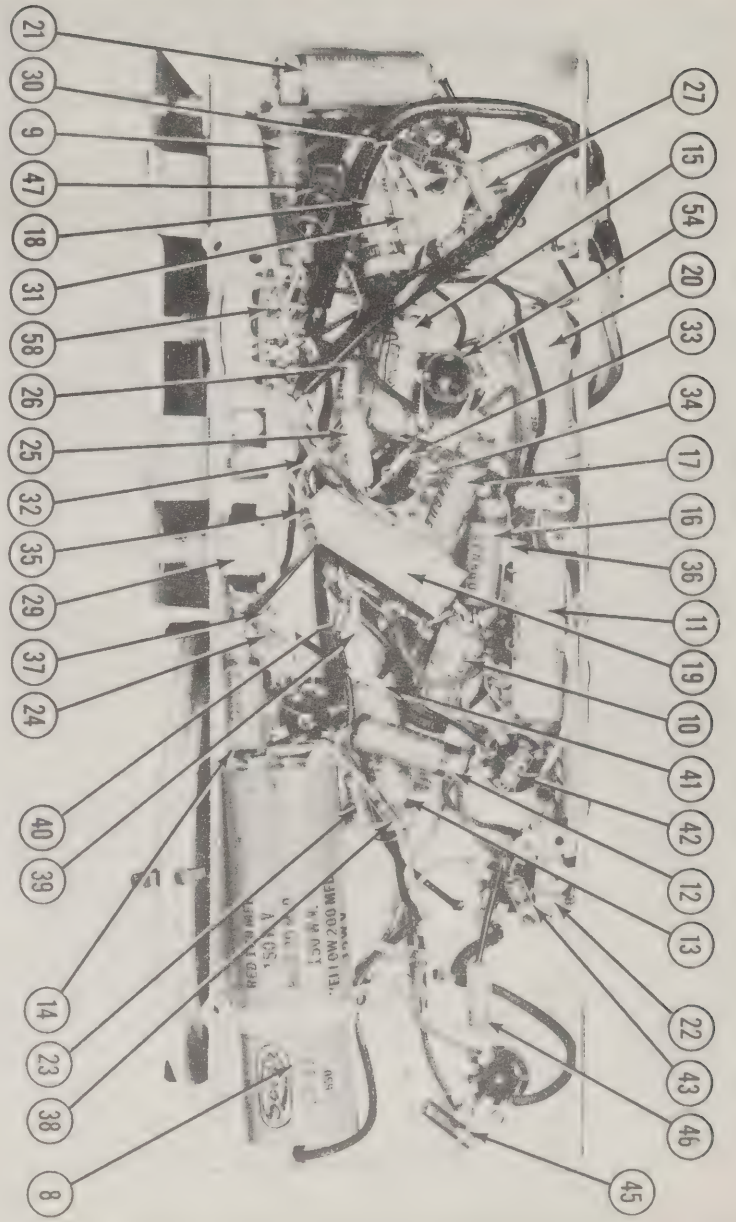
MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
58	Switch	11-62 or 11-49	Power
59	3 Gang Var. Cap	7-13	22-465, 22-465, 35-203 MMF
60	Antenna Mast	20-25	
61	Antenna Plate	20-13	
	Dial Scale	117-45	
	Dial Pointer	135-15	
	Cabinet	116-13	
	Knob	128-59	(Power Switch)
	"	128-58	(Tuning & Volume)



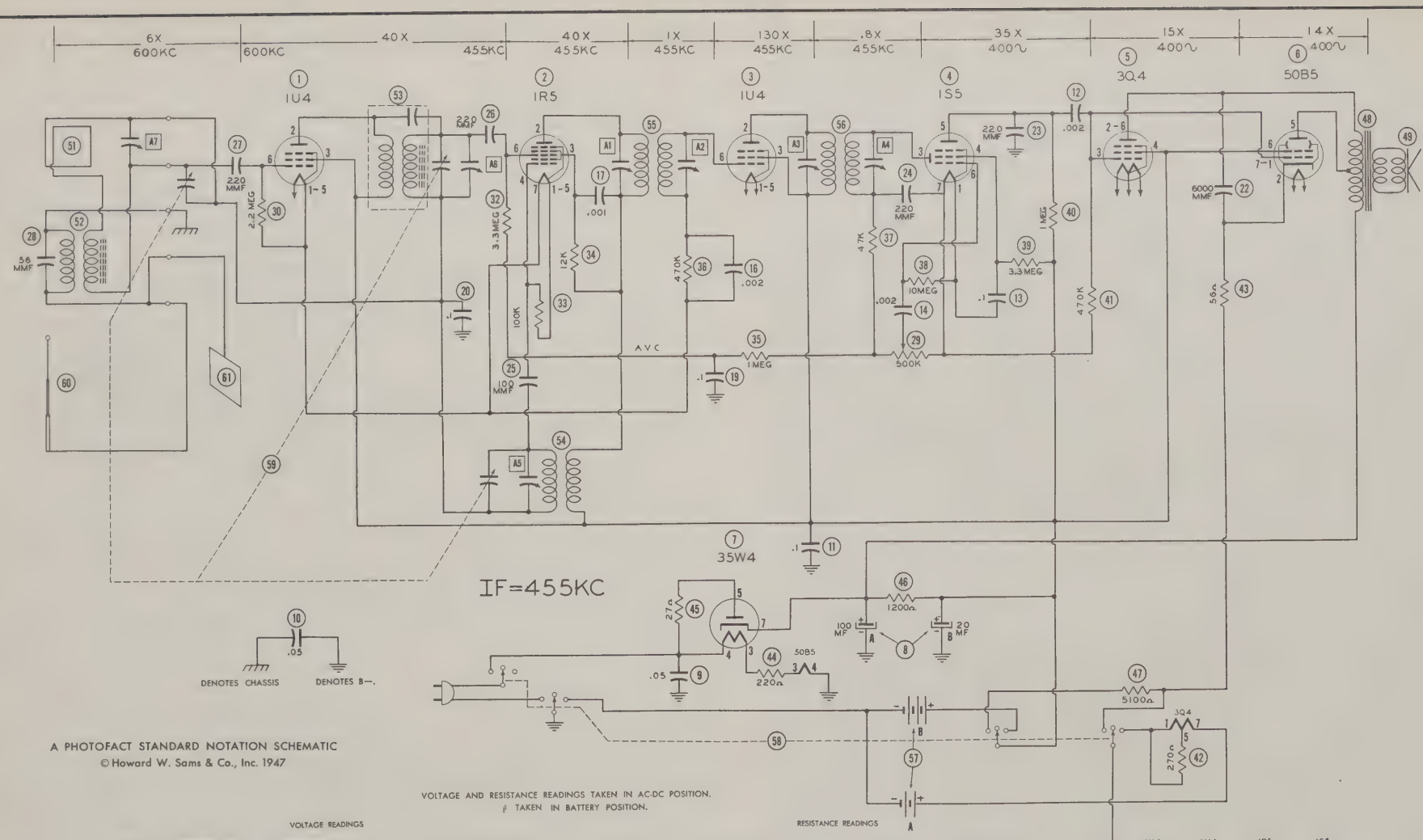
DIAL— CORD — DRIVE

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #26 FOLDER #4716-17

MAJESTIC MODELS



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.
TAKEN IN BATTERY POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1U4	2.7VDC	92VDC	92VDC	0V.	2.7VDC	.2VDC	4.2VDC
2	1R5	1.4VDC	90VDC	57VDC	-19VDC§	1.4VDC	0V.	2.7VDC
3	1U4	4.2VDC	92VDC	92VDC	1.3VDC	4.2VDC	1.3VDC	5.7VDC
4	1S5	0V.	-.1VDC	-.1VDC	20VDC	17VDC	0V.	1.4VDC
# 5	3Q4	6.4VDC	78VDC	-.4VDC	90VDC	7.7VDC	78VDC	9VDC
6	50B5	.4VDC	7.8VDC	50VAC	0V.	113VDC	92VDC	.4VDC
7	35W4	0V.	0V.	85VAC	117VAC	115VAC	110VAC	121VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1U4	*	5.2KΩ	5.2KΩ	INF.	*	3 Meg.	*
2	1R5	*	5.2KΩ	18KΩ	100KΩ	*	4 Meg.	*
3	1U4	*	5.2KΩ	5.2KΩ	500KΩ	*	500KΩ	*
4	1S5	0Ω	560KΩ	560KΩ	3.3 Meg.	1 Meg.	10 Meg.	*
# 5	3Q4	*	100KΩ	510KΩ	100KΩ	*	100KΩ	*
6	50B5	510KΩ	100Ω	50Ω	0Ω	6.5KΩ	5.2KΩ	10...
7	35W4	INF.	INF.	280Ω	300Ω	325Ω	290Ω	...

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

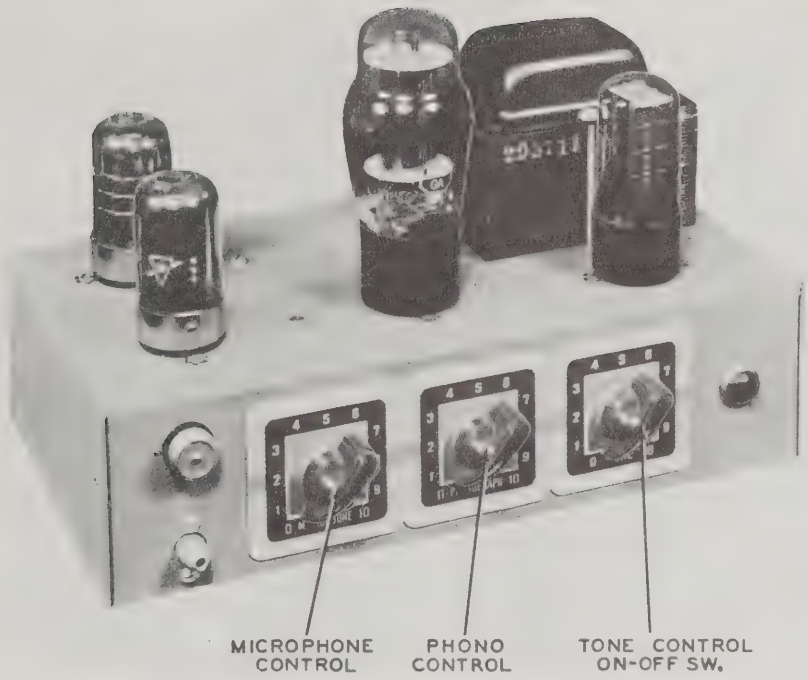
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to Pin 7 of 1S5.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage [illegible].

MASCO MODEL
MA-808



MASCO MODEL
MA-808

MASCO MODEL MA-808

TRADE NAME	Masco, Model MA-808
MANUFACTURER	Mark Simpson Co., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 2 Channel Four Tube Amplifier
TUBES (FOUR)	Types, 7B4 Mic. Amp., 7C7 Audio Amp., 6L6GA Power Output, 5Y3GT Rectifier.
POWER SUPPLY	.610 Amps. @ 117V AC RATING 110-120 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	6.4VAC	120VDC	0V.	0V.	0V.	-.7VDC	0V.	0V.
2	7C7	6.4VAC	90VDC	50VDC	0V.	0V.	0V.	1.3VDC	0V.
3	6L6G	0V.	0V.	320VDC	290VDC	0V.	90VDC	6.4VAC	16VDC
4	5Y3GT	0V.	325VDC	0V.	320VAC	0V.	320VAC	117VAC	325VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	.1Ω	325KΩ	INF.	INF.	0Ω	15 MEG.	0Ω	0Ω
2	7C7	.1Ω	325KΩ	1.1 MEG.	0Ω	0Ω	360KΩ	1KΩ	0Ω
3	6L6G	0Ω	0Ω	100KΩ	105KΩ	500KΩ	325KΩ	.1Ω	200Ω
4	5Y3GT	INF.	100KΩ	INF.	125Ω	INF.	125Ω	INF.	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

MASCO MODEL MA-805

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
1	Mic. Amp.	7B4	7B4	5AC	
2	Audio Amp.	7C7	7C7	8V	
3	Power Output	6L6GA	6L6GA	7AC	
4	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MASCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
5A	8	450		BRL8845	2N518	M-2x8-450	UT-88	PRSA450-8-8	Filter - Red
B	8	450							" - "
6	16	450		BR1645	TC74	M-16-450	UT-16	PRS450-16	" "
7	10	50		BR105	TC32	M-10-50	TA-510	PRS50-10	Cath. Bypass
8	10	50		BR105	TC32	M-10-50	TA-510	PRS50-10	" "
9	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Tone Compensation
10	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Audio Coupling
11	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	Audio Screen Bypass
12	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Audio Coupling
13	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Mic. Coupling

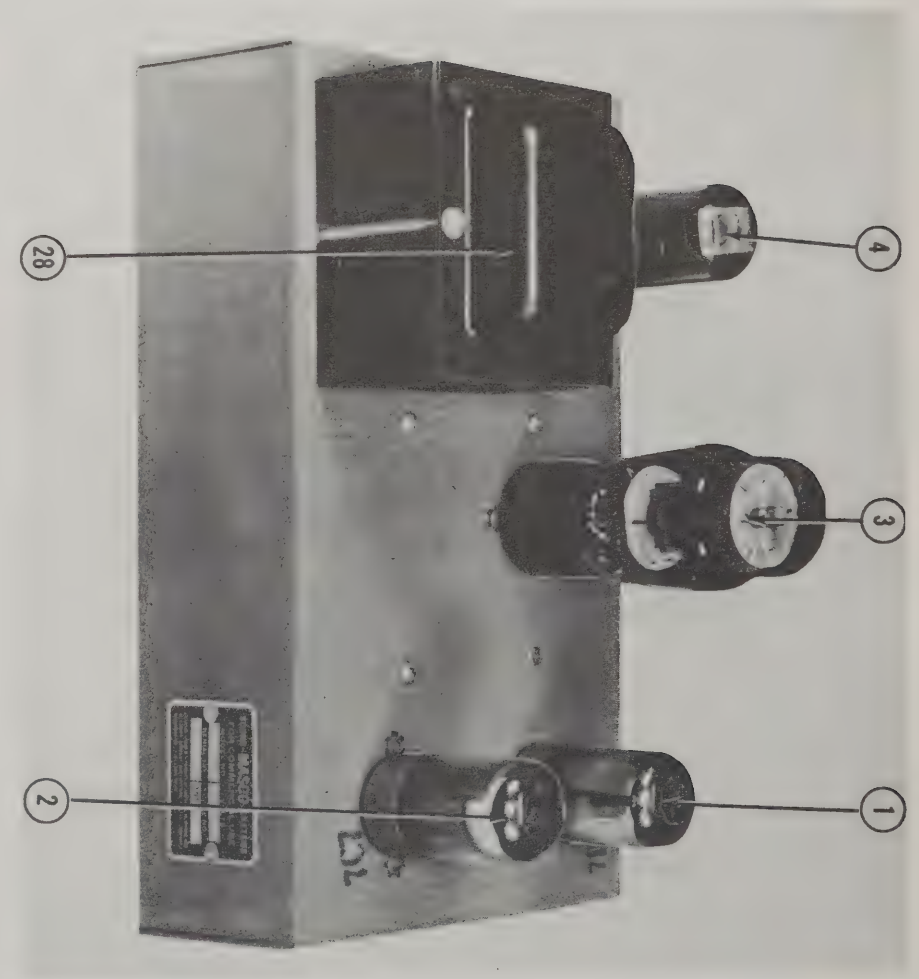
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
14A	500KΩ	1		MR48	D13-133	M-60-Z	Mike Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 14A per instructions
15A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions
16A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
17	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue Mic. Amp. Grid
18	220KΩ	½		BTS-220K	Red-Red-Yl. Mic. Amp. Plate Load
19	220KΩ	½		BTS-220K	Red-Red-Yl. Isolation
20	220KΩ	½		BTS-220K	Red-Red-Yl. Isolation
21	1000Ω	½		BTS-1000	Br.-Blk.-Red AF Cathode
22	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Screen
23	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate
24	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Feedback
25	200Ω	10		AB-200	Output Cathode
26	5000Ω	½		BTS-4700	Grn.-Blk.-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			MERIT PART No.	INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ν)	MASCO PART NO.	STANCOR PART NO.	THORDARSON PART NO.		
27	.092A	130Ω	3.2 Henries	C-178	C-2303	T20C54	C-2953§	

§Drill one new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
28	117V AC @ .61A	640V CT @ .092A	5.1V AC @ 2.0A	6.4V AC @ 1.5A	A-8-D	P-8012*	T22R04*	P-2952 *

*Drill new mounting holes.

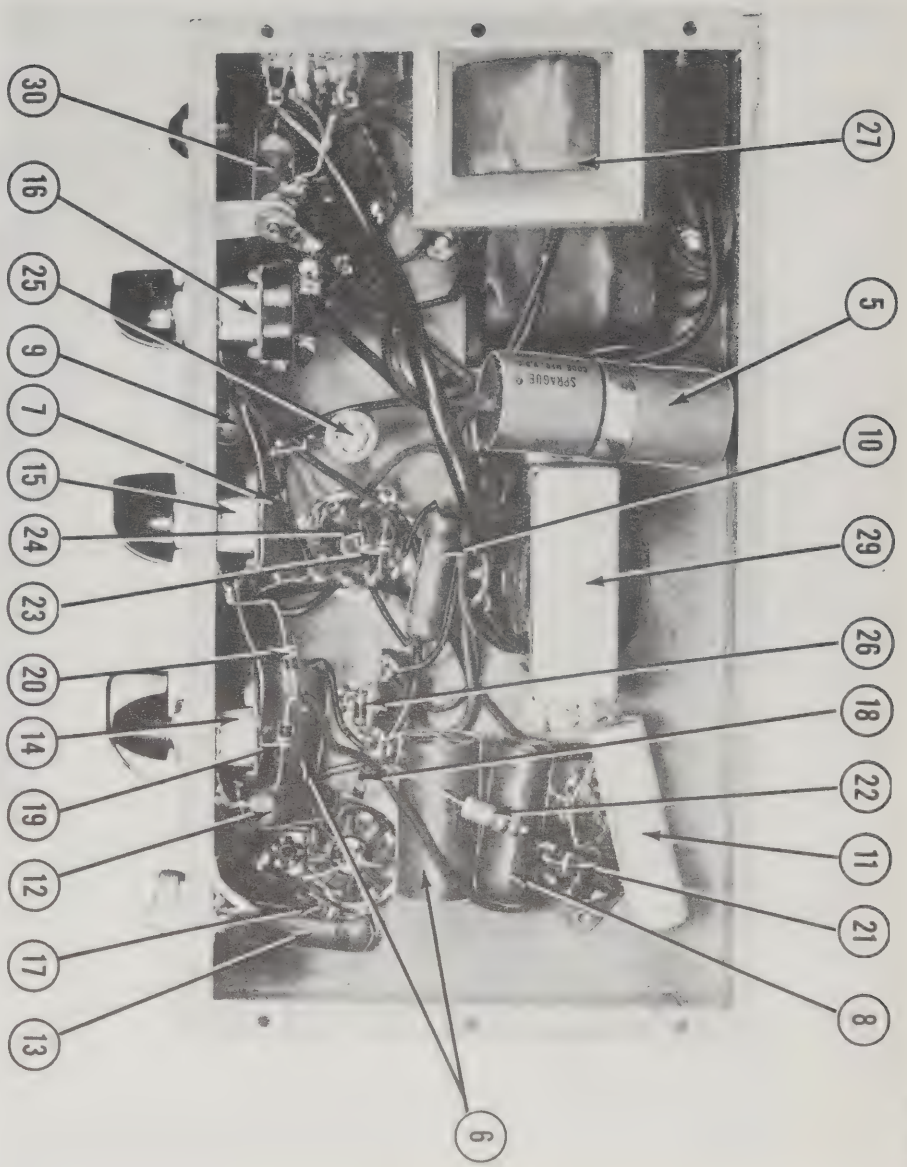
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	3800Ω	4Ω 8Ω	130Ω	.3Ω .45Ω	0-8	A-3825	T22S60	A-3825	

DIAL LIGHT

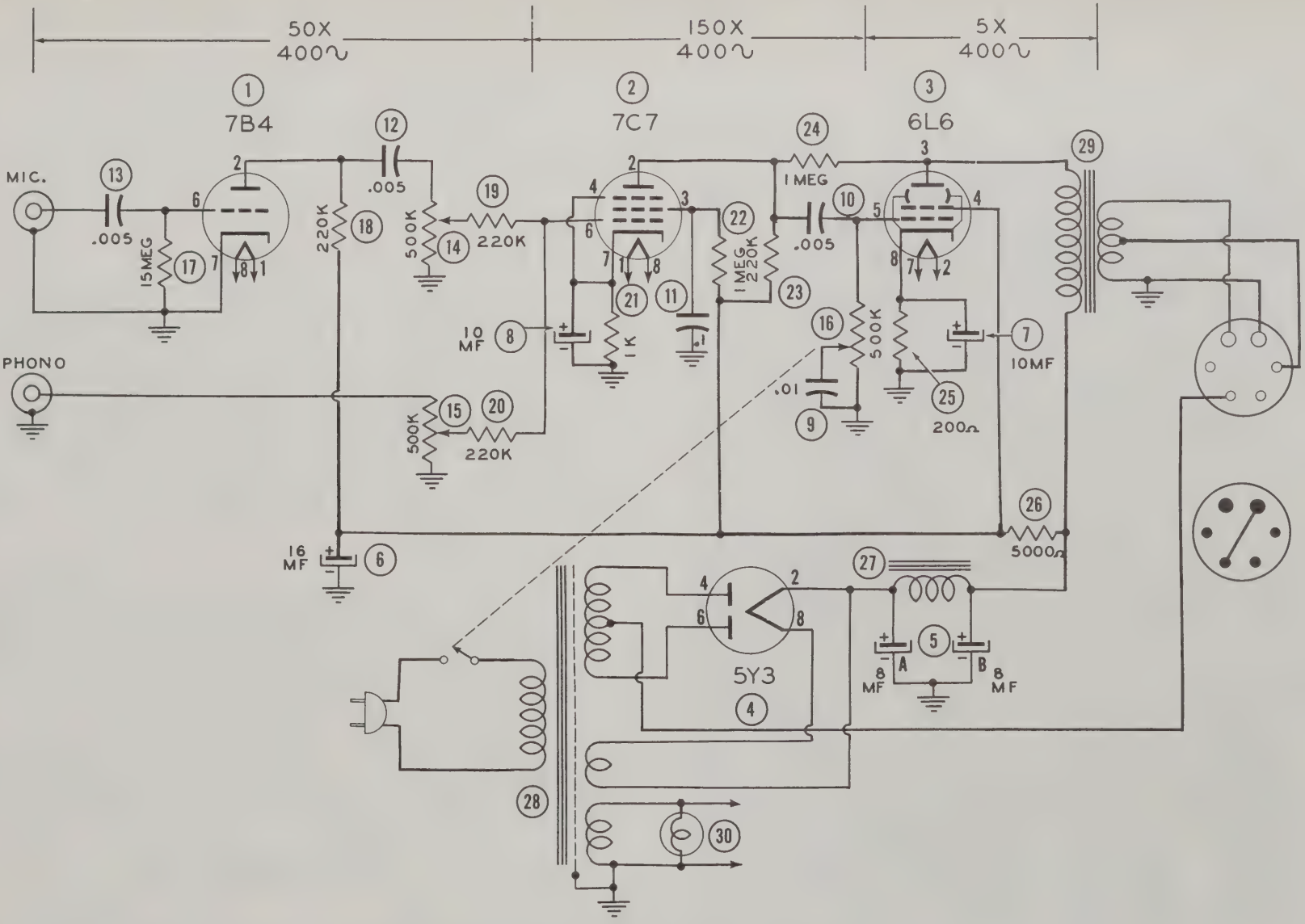
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
30	Bayonet	6-8	0.15	Brown			Type 47

CHASSIS—BOTTOM VIEW



MASCO MODEL MA-808

MASCO MODEL MA-808



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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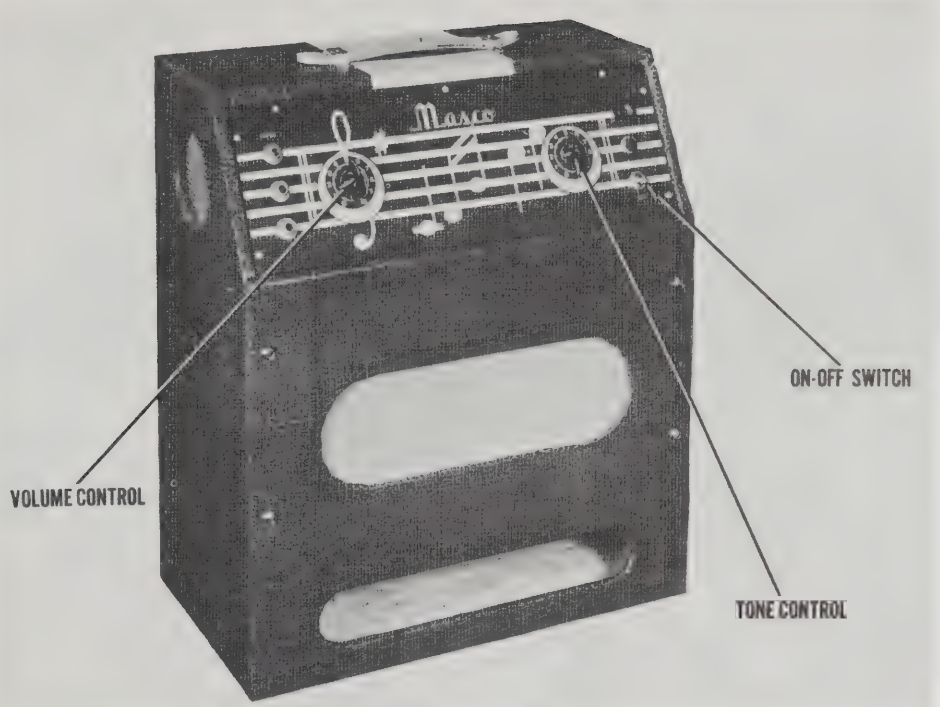
4716-18

MASCO
MODEL MAP-15



MASCO
MODEL MAP-15

MASCO MODEL MAP-15

TRADE NAME	Masco, Model MAP-15
MANUFACTURER	Mark Simpson Co., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 3 Channel 5 Tube Amplifier with Speaker
TUBES (FIVE)	Types, 6SL7 or 7F7 AF Amp., 6SL7 or 7F7 AF Amp.-Phase Inv., (2) 6L6GA Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .900 Amp. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7	0V.	70VDC	.9VDC	0V.	70VDC	0V.	6.6VAC	0V.
2	6SL7	0V.	122VDC	1.5VDC	0V.	125VDC	1.5VDC	6.6VAC	0V.
3	6L6GA	0V.	0V.	320VDC	320VDC	0V.	0V.	6.6VAC	25VDC
4	6L6GA	0V.	0V.	320VDC	320VDC	0V.	0V.	6.6VAC	25VDC
5	5Y3GT	0V.	340VDC	0V.	335VAC	0V.	335VAC	0V.	340VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7	100KΩ	330KΩ	2KΩ	15 Meg.	330KΩ	0Ω	.1Ω	0Ω
2	6SL7	520KΩ	320KΩ	1KΩ	12KΩ	320KΩ	1KΩ	.1Ω	0Ω
3	6L6GA	INF.	0Ω	90KΩ	90KΩ	550KΩ	INF.	.1Ω	200Ω
4	6L6GA	0Ω	0Ω	90KΩ	90KΩ	520KΩ	INF.	.1Ω	200Ω
5	5Y3GT	INF.	90KΩ	INF.	54Ω	INF.	50Ω	INF.	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

MASCO MODEL MAP-18

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
1A	AF Amp.		6SL7	8BD	
B	" "		7F7	8AC	
2A	AF Amp.-Phase Inv.		6SL7	8BD	
B	" "		7F7	8AC	
3	Power Output		6L6GA	7AC	
4	" "		6L6GA	7AC	
5	Rectifier		5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MASCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6	16	450		ST597	M-16-450	UT-16	PRS450-16	BR1645	Filter
7	16	450		ST597	M-16-450	UT-16	PRS450-16	BR1645	"
8A	8	450		2N518	M-2x8-450	UT-88	PRSA450-8-8	BRD1145	" - Red
B	8	450							" - "
9	10	50		TC32	M-10-50	TA-510	PRS50-10	BR105	Cathode Bypass
10	10	50		TC32	M-10-50	TA-510	PRS50-10	BR105	" "
11	.1	600		TP418	MPW-6-1	TC-1	684-.1	DT6P1	Line Filter
12	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
13	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	" "
14	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
15	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
16	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	" "

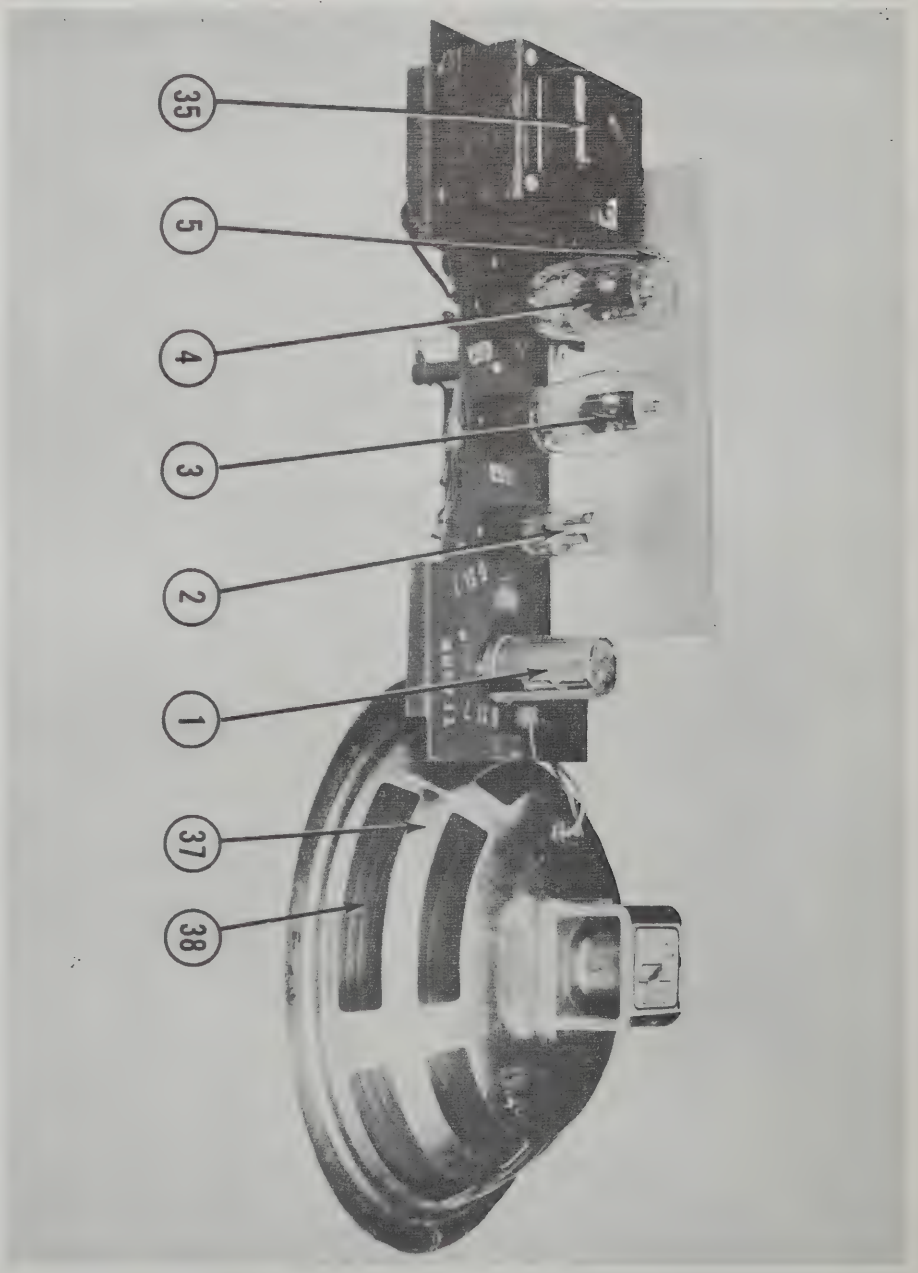
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	1		MR-48	D13-133	AM-60-Z	Volume Control
B	Shaft			Not Req.	F	RS-3	Attach to 17A per instructions
18A	500KΩ	1		MR-48	D13-133	AM-60-Z	Tone Control
B	Shaft			Not Req.	F	RS-3	Attach to 18A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
19	220KΩ	½		BTS-220K	Red-Red-Yl. Series Input
20	220KΩ	½		BTS-220K	Red-Red-Yl. " "
21	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Grid
22	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Grn. " "
23	2000Ω	½		BTS-2200	Red-Blk.-Red AF Cathode
24	220K	½		BTS-220K	Red-Red-Yl. AF Plate Load
25	1000Ω	½		BTS-1000	Brn.-Blk.-Red AF-Phase Inverter Cathode
26	220K	½		BTS-220K	Red-Red-Yl. AF Plate Load
27	220K	½		BTS-220K	Red-Red-Yl. Phase Inverter Plate Load
28	12K	½		BTS-12K	Brn.-Red-Or. Phase Inverter Grid
29	500K	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
30	500K	½		BTS-470K	Grn.-blk.-Yl. " "
31	200Ω	10		AB-200	Output Cathode
32	12K	½		BTS-12K	Brn.-Red-Or. Filter
33	10K	½		BTS-10K	Brn.-Blk.-Or. "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MASCO PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
34	.125A	130Ω	3.2H	C-178	T20C54	C-2303	C-2993†	† Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
35	117V AC @ .9A	670V CT @ .125A	5.0V AC @ 1.0A	2.0V AC @ 2.4A	A-17	P-6014	T22R05	P-2953

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
36	6400Ω CT	4Ω	140Ω CT	.3Ω	O-17	A-3880 †	T22S06 †		† Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MASCO PART No.	JENSEN PART No.		
37	FIELD PM	VC IMP. 4Ω	AM-12	ST-101* P12-T		*Change output transformer to match 8Ω voice coil
38	CONE DIA. 11-3/4"	VC DIA. 1-1/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
39	Bayonet	6-8	0.15	Brown			Type 47

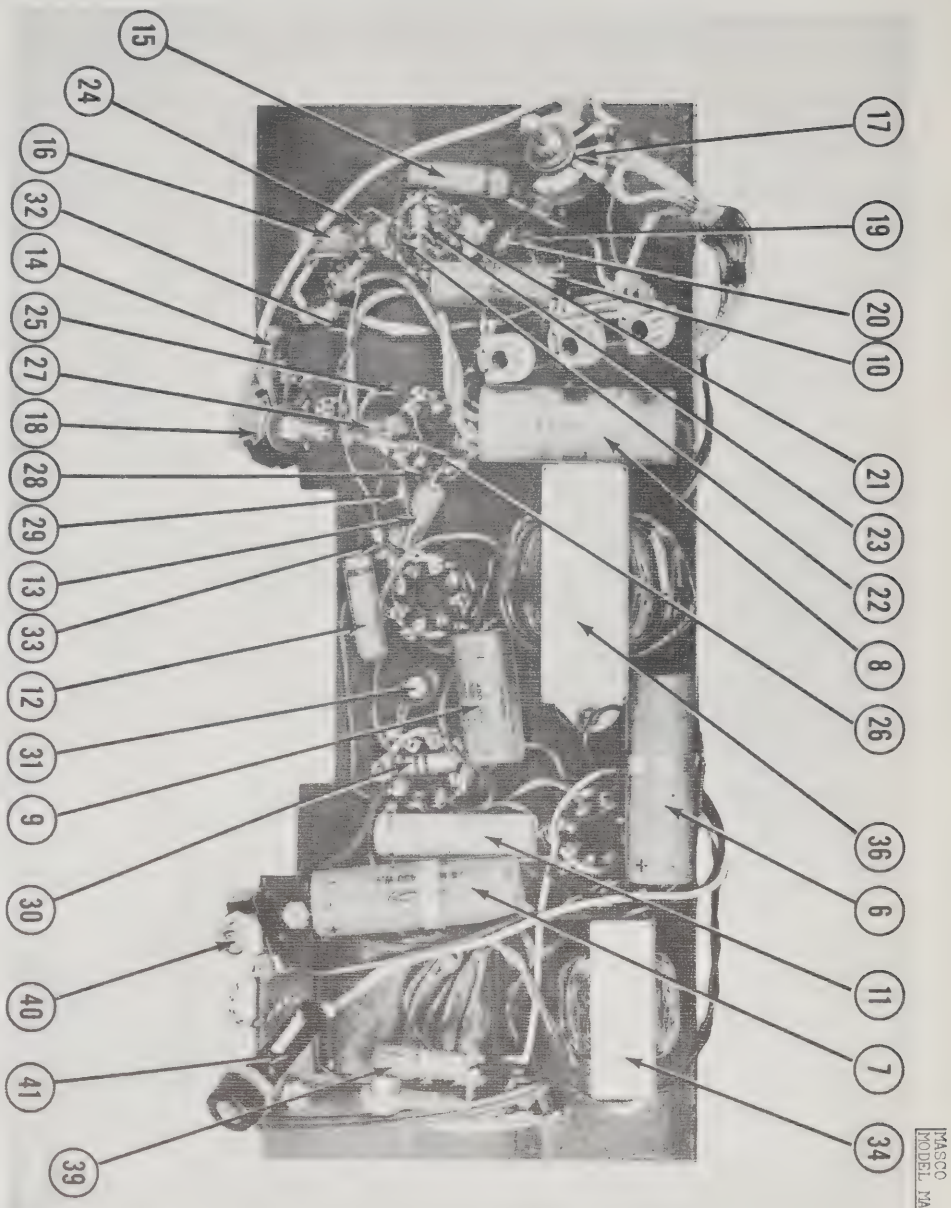
MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
40	Switch		On-Off
41	Fuse		3-5 Amperes

DISASSEMBLY INSTRUCTIONS

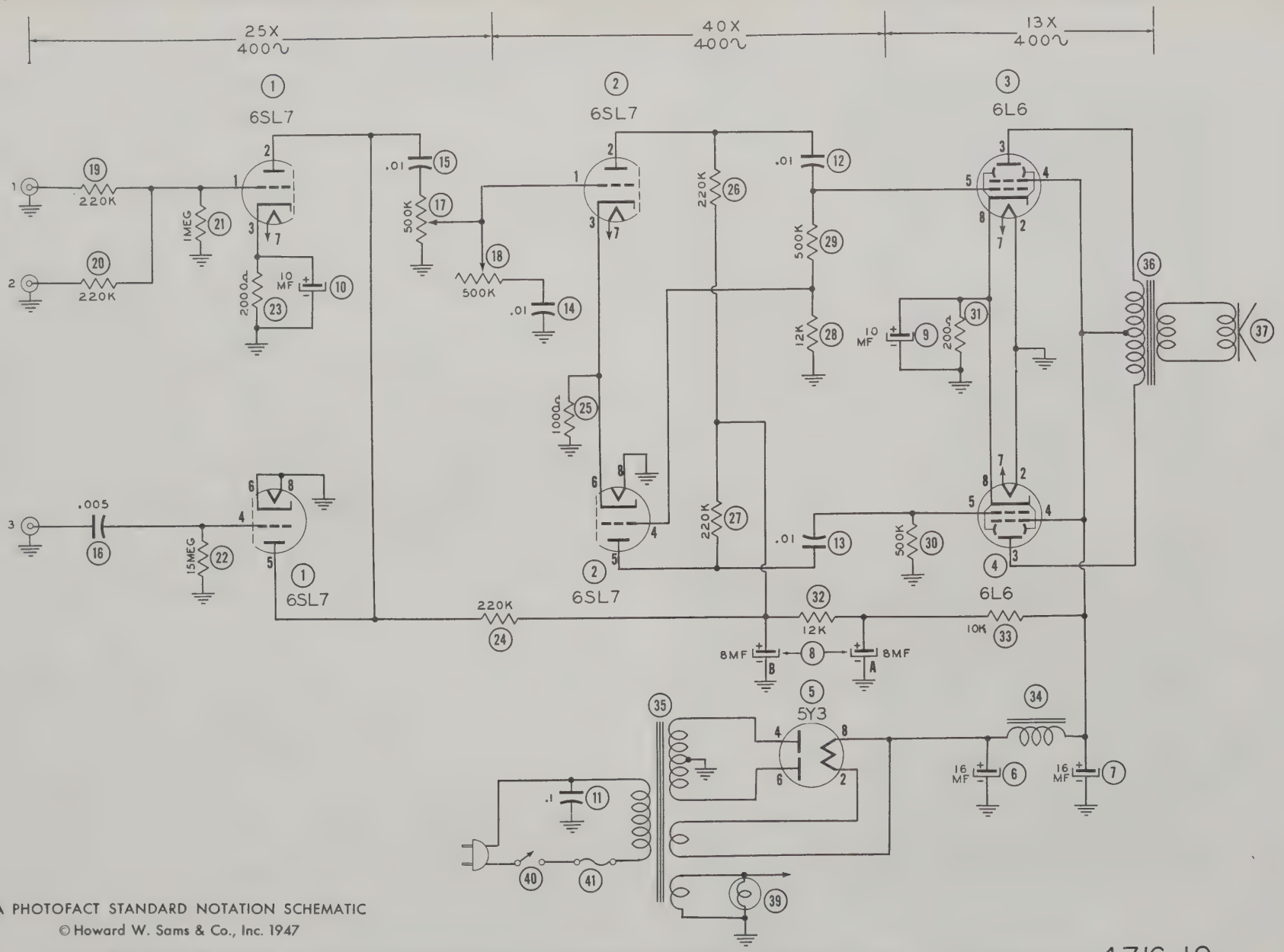
1. Remove four wood screws holding panel below control panel to cabinet. Remove from cabinet.
2. Remove two control knobs.
3. Remove six lock nuts holding controls and input jacks to control panel.
4. Remove seven wood screws holding control panel to cabinet.
5. Remove one lock nut holding dial light to control panel.
6. Unsolder two leads and remove fuse holder from control panel.
7. Remove two wood screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

CHASSIS—BOTTOM VIEW



MASCO MODEL MAP-15

10/47 SET #26 FOLDER #4716-19



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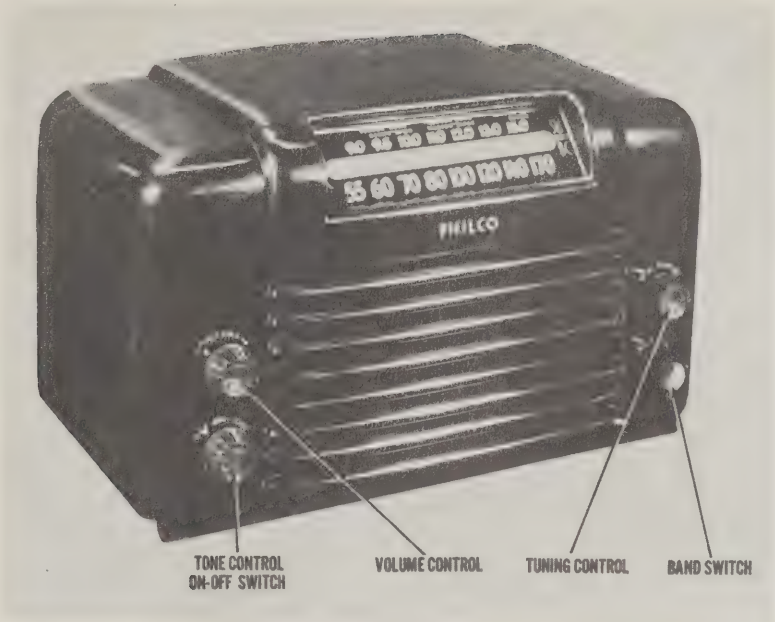

PHILCO MODEL 48-464

TRADE NAME	Philco, Model 48-464
MANUFACTURER	Philco Corp., Tioga & C Sts., Philadelphia, Pa.
TYPE SET	AC-DC 2 Band Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 14AF7 Converter, 7B7 1st IF Amp., 7B7 2nd IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
RATING	.250 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1720KC
SHORT WAVE	9-15.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer 3-9/16" from extreme left edge of dial backplate bracket. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to front stator of tuning cap. Low side to B-.	455KC	BC (Counter clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	580KC	"	4-5/16" from extreme left edge of dial backplate brkt.	"	A5	Fashion loop of several turn of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1700KC	"	8-9/16" from extreme left edge of dial backplate brkt.	"	A6	Adjust for maximum output.
4		"	1500KC	"	Tune for maximum output.	"	A7	" " " "
5		"	580KC	"	"	"	A5	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 and 5 until no further increase in output can be obtained. Then repeat Step 3.
6		"	15MC	SW (clockwise)	8-3/8" from extreme left end of dial backplate bracket.	"	A8	Adjust for maximum output. Tune signal gen. to 14.1 MC. Signal should not be heard. If it is, retune sig. gen. to 15MC and loosen trimmer to next peak. Adjust for maximum output and recheck for image.
7		"	"	"	Tune for maximum output.	"	A9	Rock tuning cap. and adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-20

PARTS LIST AND DESCRIPTIONS

PHILCO MODEL 48-[illegible]

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14AF7	14AF7	[illegible]	
2	1st IF Amp.	7Z7	7Z7	[illegible]	
3	2nd IF Amp.	7Z7	7Z7	[illegible]	
4	Det.-AVC-AF	7C6	7C6	[illegible]	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	25Y4	25Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	30-2573	TN129	DSB-403020-150	TA-303	PRSA150-30-30	EZ42215	Filter- Orange
B	20	150							" - Blue
C	30	150					PRS150-20		" - Red
8	.04	400	45-3500-2	TP425	MPM-4-05	TC-14	484-03	DT4S4	Line Filter
9	.04	400	45-3500-2	TP425	S-6-04	TC-14	484-03	DT4S4	Rectifier Bypass
10	.02	400	61-0108	TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
11	.006	400	45-3500-7	TP409	S-6-006	TC-26	484-006	DT6D6	Tone Comp.
12	.02	400	61-0108	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	" "
14	.05	200	61-0122	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
15	.05	200	61-0122	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
16	.05	400	76-2362	TP426	S-4-05	TC-15	484-05	DT4S5	Line Isolation *
17	.15	600	30-2681-2	TP417	S-6-2	TC-1	684-.15	DT6P2	" " *
18	.006	400	45-3500-7	TP409	S-6-006	TC-26	484-006	DT6D6	" " *
19	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	Converter Plate Decoup.
20	.05	200	61-0122	TP426	S-4-05	TC-15	484-05	DT4S5	Converter Cathode Byp.
21	220		60-1220100[illegible]	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Output Grid Bypass
22	220		60-1220100[illegible]	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	RF Coupling
23	47		60-0047530[illegible]	MC227	MC.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid
24	275		30-1220-7						Fixed Pad.
25	220		60-1220100[illegible]	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Osc. Feedback
26	275		30-1220-7						Fixed Pad.
27	6		60-0060307	MC205	MO.5-55	MS-55	1468-000065	5W5V5	Feedback

*Wind same number turns as on original.

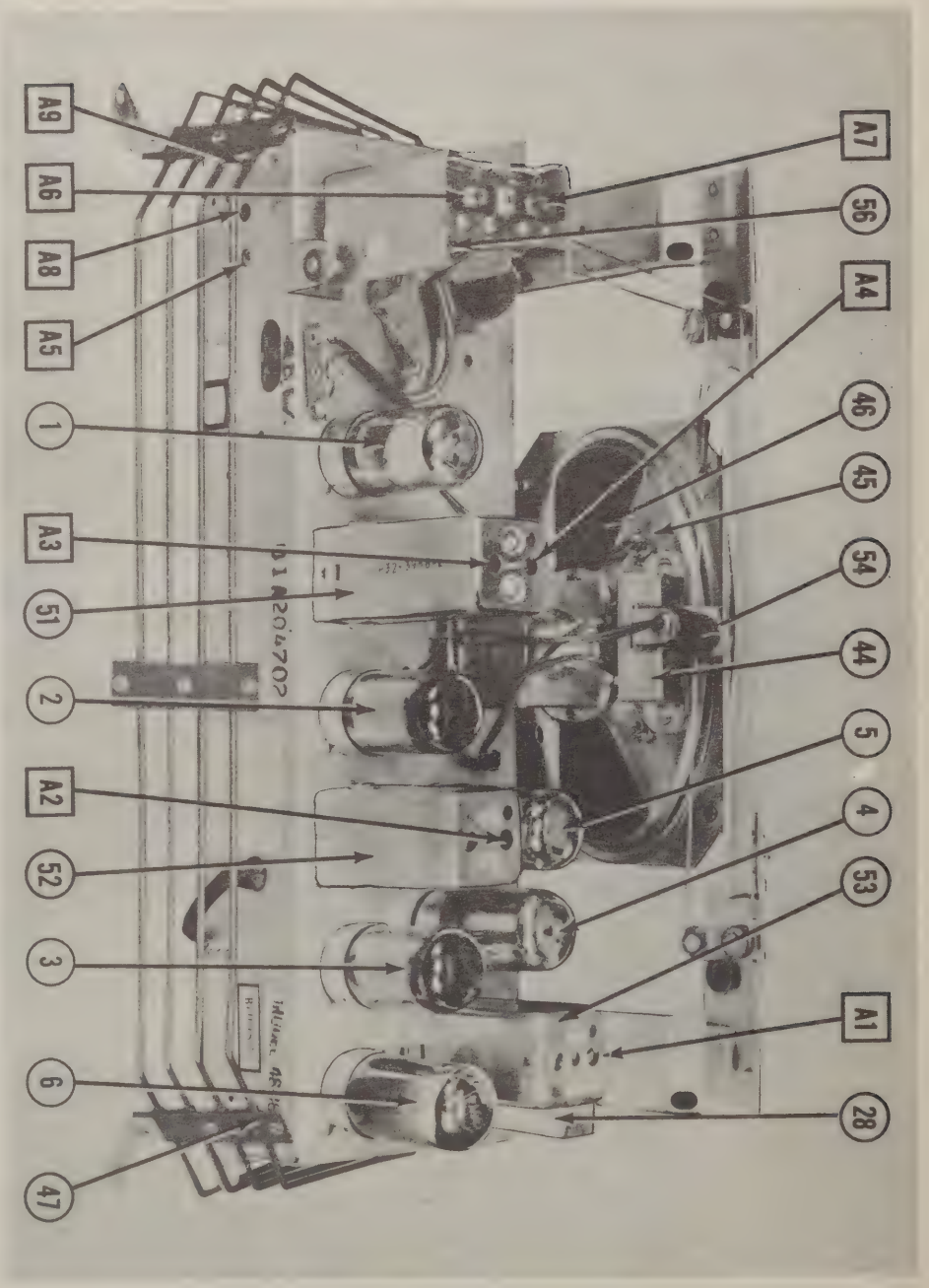
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	500KΩ	½	33-5539-11	MR40	D13-133	M-60-2	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 28A per instructions
29A	500K	½	33-5535-14	MR40			Tone Control
B	Shaft		Not Req.	Not Req.			Attach to 29A per instructions
C	Switch		" "	MS6			" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
30	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Oscillator Grid
31	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Mixer Cathode
32	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Oscillator Plate Load
33	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. Mixer Grid
34	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Mixer Plate Decoupling
35	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. IF Screen Dropping
36	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
37	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
38	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
39	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
40	120Ω	½	66-1123340	BW-½-120	Br.-Or.-Br. Output Cathode
41	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Line Isolation
42	1200Ω	½	66-2123340	BTS-1200	Br.-Red-Red Filter
43	220Ω	1	66-122430	BW-1-220	Red-Red-Br. "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
44	2000Ω	3.2Ω	170Ω	1.7Ω	Part of 36-1615-1	A-3870	TD2S45	A-2458	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
45	PM	3.9Ω	36-1615-1			
	CONE DIA.	VC DIA.				
46	4"x6"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

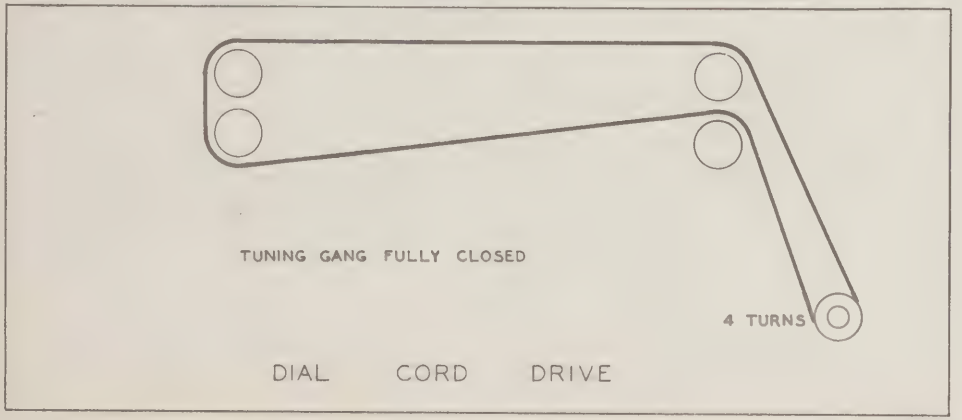
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
47	Loop Ant.		0Ω	76-2436		
48	BC Ant.Coil		1.5Ω	32-3846-1		
49	SW Ant.Coil		0Ω	32-3517-1		
50A	BC Osc.Coil		5.5Ω	32-3715-1		Items 50A & 50B wound on same form.
B	SW Osc.Coil		.5Ω			
51	Input IF	1.2Ω	20Ω	32-3956-2		
52	Inter. IF	8Ω	22Ω	32-3957-2		
53	Output IF	50Ω		32-3955-2		

DIAL LIGHT

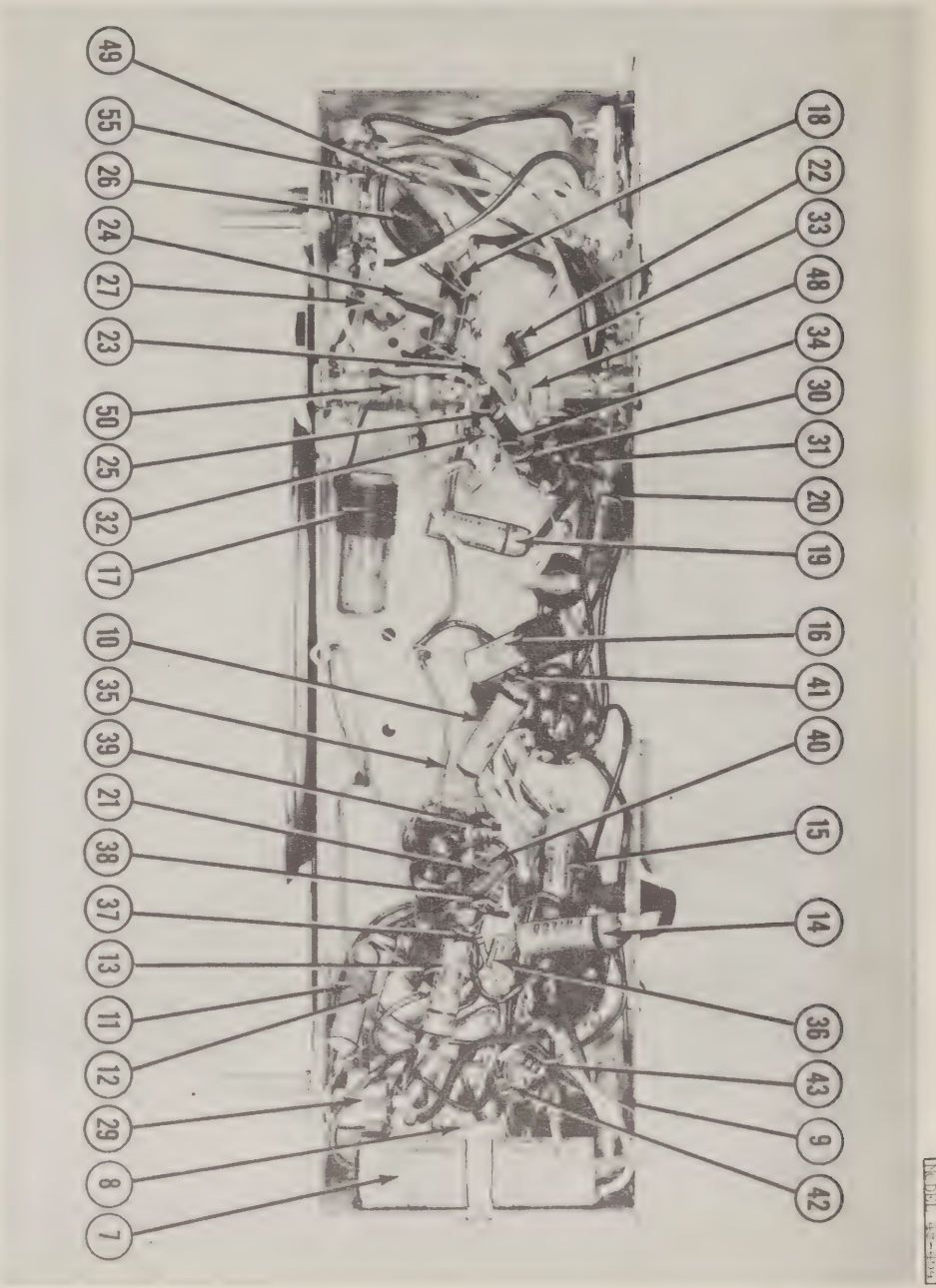
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
54	Bayonet	6-8	0.15	Brown			Type 47

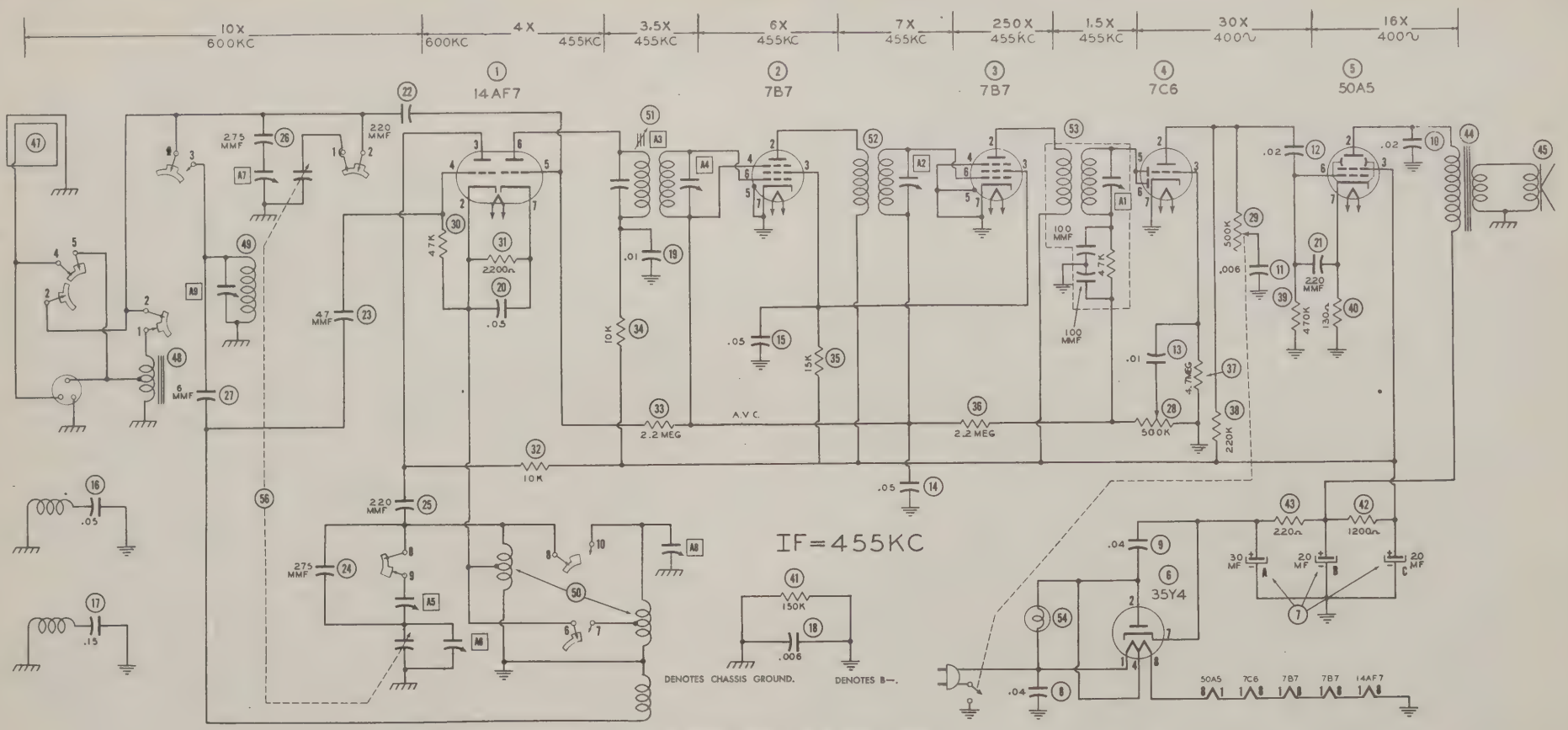
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
55	Band Switch	42-1791	
56	2 Gang Var. Cap.	31-2715	26-483 MMF each section
A5	Trimmer Strip	31-6477-2	BC Osc. Adj.
A8			SW Osc. Adj.
A9			SW Ant. Adj.
	Cabinet	10618B	
	Dial Backplate	76-2390	Assembly



CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	13VAC	0V.	55VDC	-3.1VDC§	-.3VDC	70VDC	3.3VDC	0V.
2	7B7	20VAC	86VDC	52VDC	-.8VDC	0V.	-.8VDC	0V.	13VAC
3	7B7	27VAC	86VDC	52VDC	0V.	0V.	-.8VDC	0V.	20VAC
4	7C6	34VAC	68VDC	-.8VDC	0V.	-.6VDC	-.6VDC	0V.	27VAC
5	50A5	34VAC	86VDC	102VDC	0V.	0V.	0V.	4.8VDC	87VAC
6	35Y4	117VAC	113VAC	86VDC	113VAC	0V.	120VDC	120VDC	87VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	13Ω	1.2MΩ	1.2MΩ	50KΩ	5 Meg.	50KΩ	2.2KΩ	0Ω
2	7B7	20Ω	50KΩ	65KΩ	3 Meg.	0V.	3 Meg.	0V.	13Ω
3	7B7	26Ω	50KΩ	65KΩ	0V.	0V.	3 Meg.	0V.	20Ω
4	7C6	32Ω	270KΩ	5 Meg.	0V.	540KΩ	540KΩ	0V.	26Ω
5	50A5	32Ω	50KΩ	50KΩ	INF.	0V.	470KΩ	120Ω	85Ω
6	35Y4	115Ω	112Ω	50KΩ	112Ω	INF.	50KΩ	50KΩ	85Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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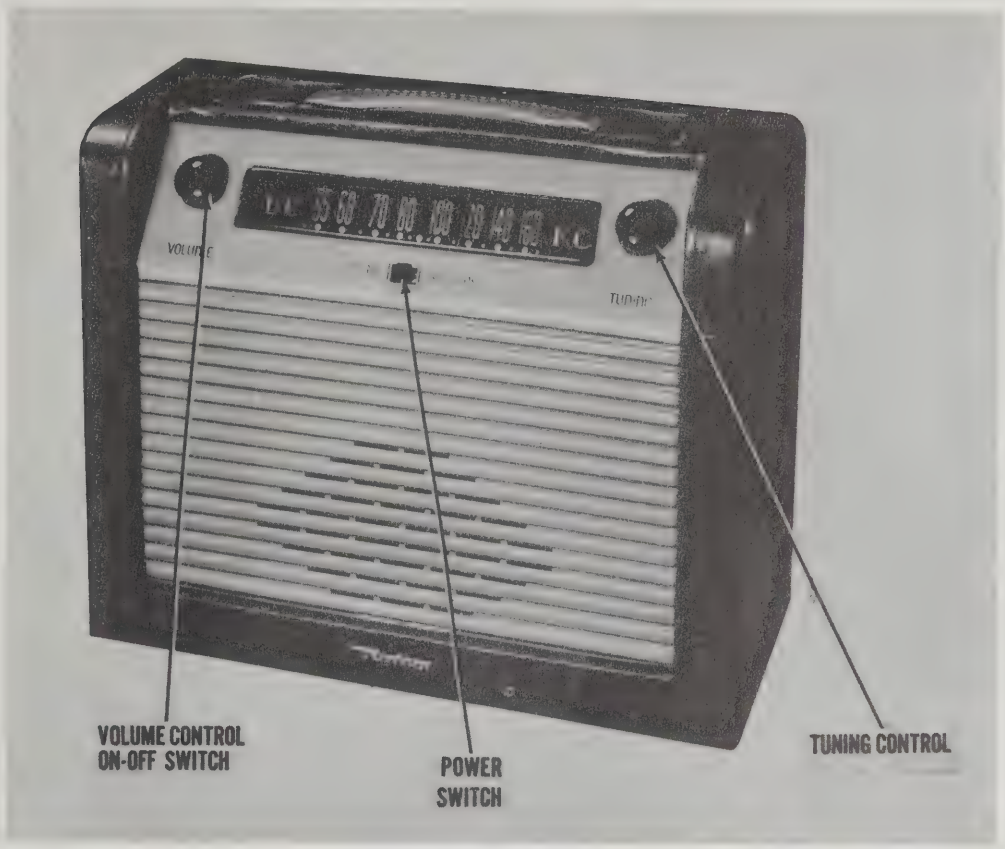
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PURITAN MODEL 509
BATTERY OPERATED



PURITAN MODEL 509
BATTERY OPERATED

PURITAN MODEL 509

TRADE NAME	Puritan, Model 509
SUPPLIER	The Pure Oil Co., 35 Wacker Dr., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 1A7GT Converter, 1N5GT 1st IF Amp., 1N5GT 2nd IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 9 Volt "A" Supply and 90 Volt "B" Supply .210 Amp. @ 117V AC or 51MA @ 9V DC and 11MA @ 90V DC
TUNING RANGE—BROADCAST	532-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2		Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1550KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PURITAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	1st IF Amp.	1N5GT	1N5GT	5Y	
3	2nd IF Amp.	1N5GT	1N5GT	5Y	
4	Det.-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150		FP409	DY-419	EL-443	AF686D4A	UP55515C	● Filter
B	40	150							▲ "
C	40	150							■ "
D	20	25							Fil. Bypass
8	25	25		TC26	M-25-25	TA-25	PRSA25-25	BR252A	" "
9	.1	600		TP418	MPH-6-1	TC-1	684-.1	DT6P1	Line Filter
10	.2	400		TP419	S-4-2	TC-2	484-.2	DT4P2	RF Bypass Pwr. Supply
11	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Fil. Bypass
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	" "
13	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	" "
14	.2	400		TP419	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
15	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Output Plate Bypass
16	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
17	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	" "
18	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
19	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	" "
20	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	" "
21	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Conv. Screen Bypass
22	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
23	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	IF Coupling
24	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid

CONTROLS

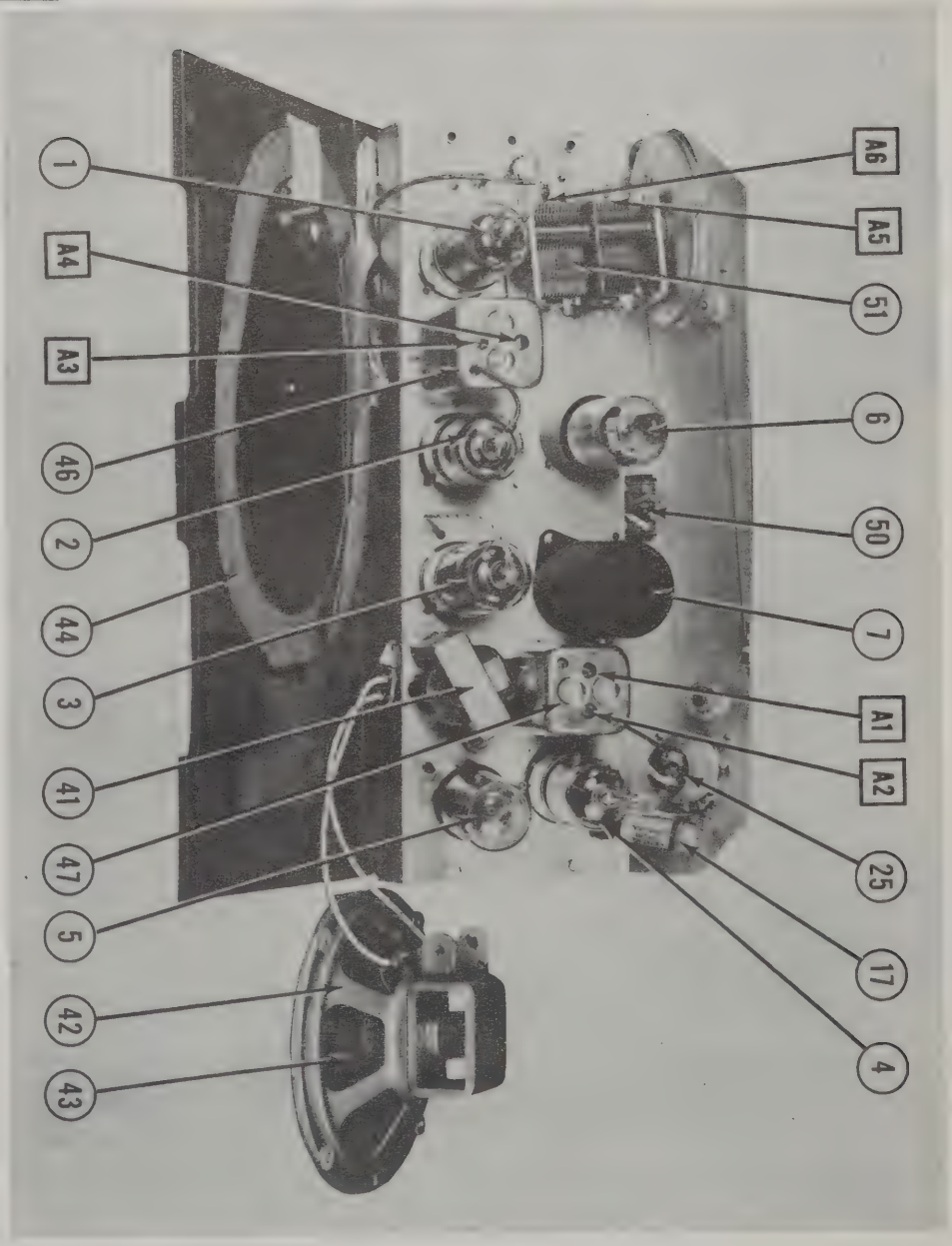
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	½		MK401	D13-133	AM-60-Z	Volume Control
B	Shaft			Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	IRC PART No.	IDENTIFICATION CODES
26	220KΩ	½		BTS-220K	Red-Red-Yl. Oscillator Grid
27	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Screen Dropping
28	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. " "
30	3.5 Meg.	½		BTS-3.9 Meg.	Or.-Grn.-Grn. AVC Network
31	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid-See Note 1
32	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
33	1.2 Meg.	½		BTS-1.2 Meg.	Br.-Red-Grn. Output Grid
34	820Ω	½		BTS-820	Gray-Red-Br. Filament String
35	820Ω	½		BTS-820	Gray-Red-Br. " "
36	2200Ω	1		BTA-2200	Red-Red-Red Filter
37	15Ω	1		BW-1-15	Surge Limiter
38A	1200Ω	10		AB-1250	Filament String
B	1350Ω			AB-1250	" "
39	8200Ω	½		BTS-8200	Gray-Red-Red IF Plate Load-See Note 2
40	16KΩ	½		BTS-15K	Br.-Blue-Or. IF Grid - See Note 3

Note 1 - Some models use 3.9 Meg. in this application.
Note 2 - Some models use 22KΩ in this application.
Note 3 - Some models use 47KΩ in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PURITAN PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
41	8600Ω	3.5Ω	650Ω	.8Ω	TA7-1	A-3879	T22S47	A-2932	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PURITAN PART No.	JENSEN PART No.		
42	FIELD	VC IMP.	EH6-1	ST-105 Mod. P5-X		
	PM	3.5Ω				
43	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
	5"	1/2"				

R F COILS

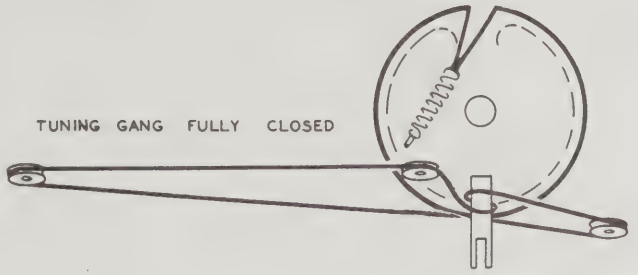
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PURITAN PART No.	MEISSNER PART No.	
44	Loop Ant.		1.2Ω			
45	Osc. Coil	1Ω	4.5Ω		14-1040	
46	Input IF	11Ω	18Ω	TM2-12	16-6658	
47	Output IF	14Ω		TM2-13	16-6670	

BATTERIES

ITEM No.	VOLTAGE	PURITAN PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
48	9V "A"		2 #746			2 Used in series
49	90V "B"			2 #482		" " " "

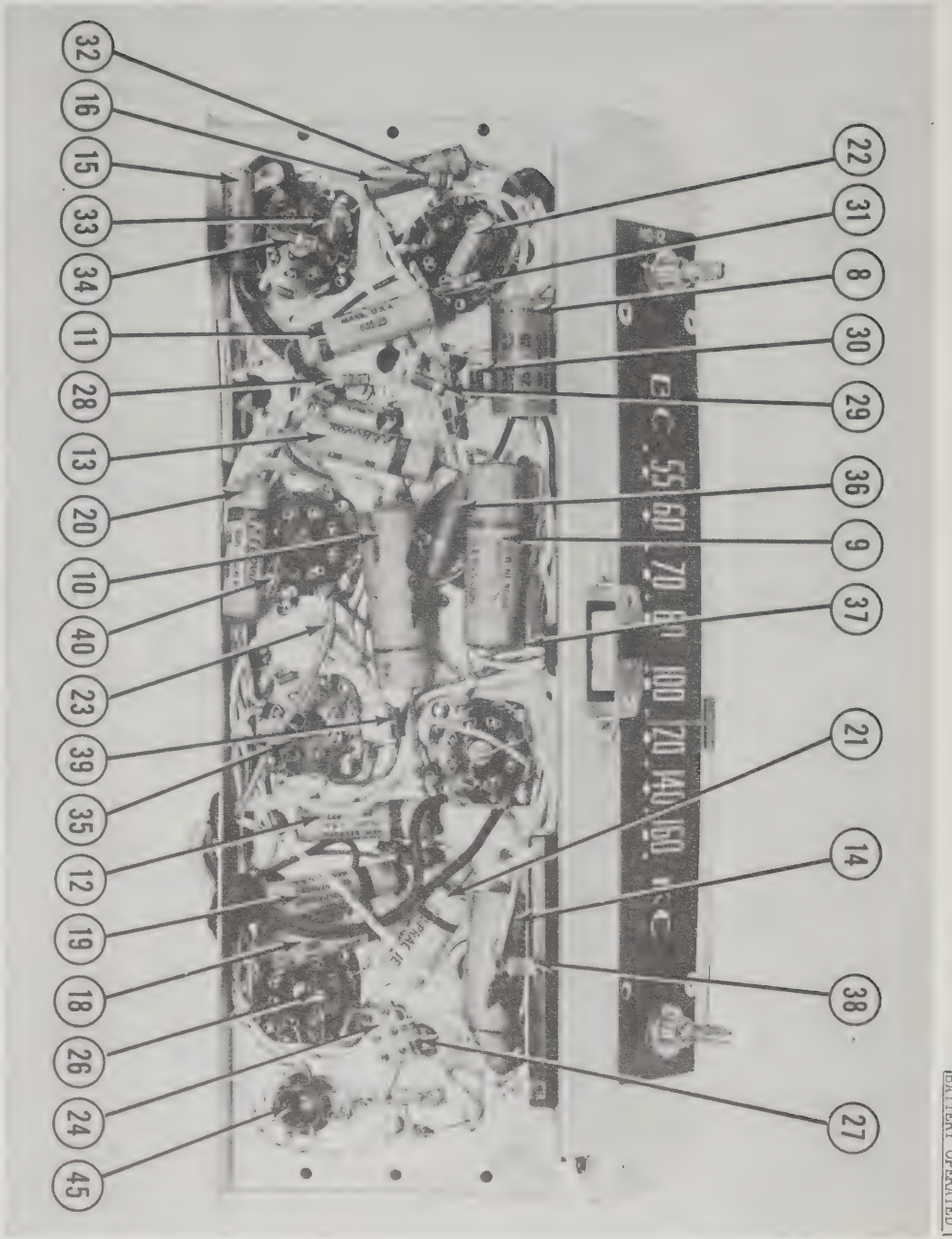
MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
50	Switch		Power Change
51	2 Gang Var. Cap.	CV-6	23-440 MMF, 20-186 MMF

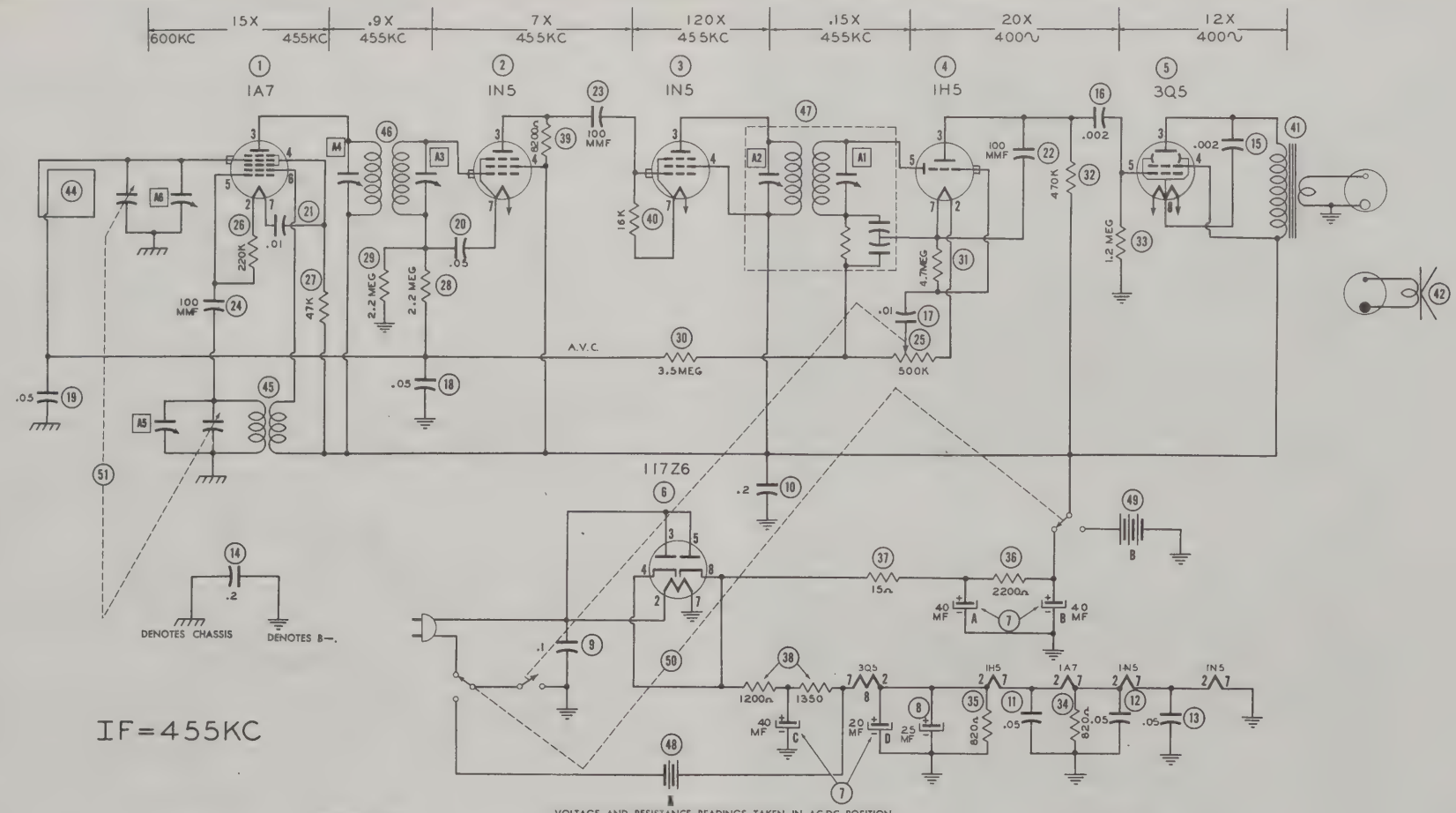


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



PURITAN MODEL 509
BATTERY OPERATED



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	4.3VDC	99VDC	53VDC	-3.7VDC§	98VDC	2.8VDC	.2VDC	.2VDC
2	1N5GT	0V.	2.8VDC	90VDC	98VDC	0V.	0V.	1.4VDC	.1VDC	.1VDC
3	1N5GT	0V.	1.4VDC	98VDC	98VDC	0V.	0V.	0V.	0V.	0V.
4	1H5GT	0V.	5.6VDC	75VDC	0V.	1.4VDC	.2VDC	4.3VDC	4.3VDC	.2VDC
5	3Q5GT	0V.	5.6VDC	99VDC	98VDC	0V.	0V.	8.3VDC	7VDC	-
6	117Z6GT	128VDC	117VAC	117VAC	130VDC	117VAC	0V.	0V.	130VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	INF.	*	4.7KΩ	50KΩ	230KΩ	4.7KΩ	*	2.5 Meg.	2.5 Meg.
2	1N5GT	INF.	*	13KΩ	4.7KΩ	INF.	0Ω	*	2 Meg.	2 Meg.
3	1N5GT	INF.	*	4.7KΩ	4.7KΩ	INF.	15KΩ	0Ω	INF.	15KΩ
4	1H5GT	INF.	*	470KΩ	INF.	570KΩ	4.7 Meg.	*	*	4.7 Meg.
5	3Q5GT	INF.	*	5KΩ	4.7KΩ	1.1 Meg.	0Ω	*	*	-
6	117Z6GT	2.5KΩ	230Ω	230KΩ	2.5KΩ	230Ω	0Ω	0Ω	2.5KΩ	-

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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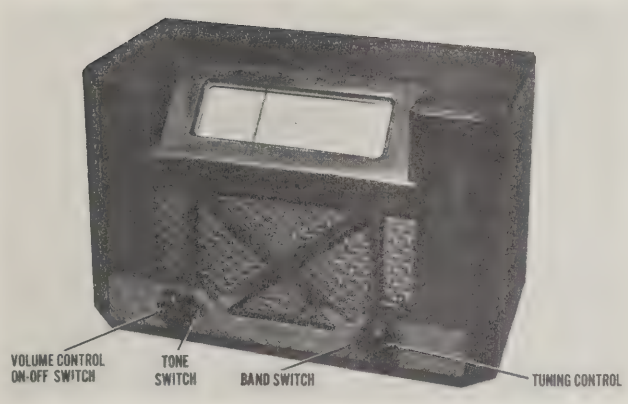
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

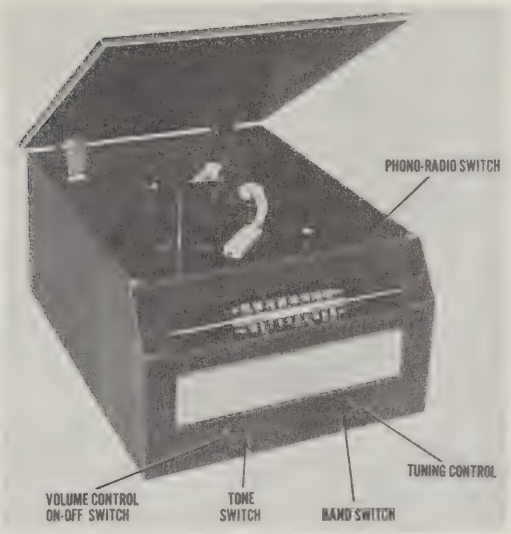
4716-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting high side of volume control to low side.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

RADIONIC MODELS
Y62W, Y728





RADIONIC MODELS
Y62W, Y728

TRADE NAME	Radionic, Models Y62W, Y728
MANUFACTURER	Radionic Equip. Co., 170 Nassau St., N.Y. 7, N.Y.
TYPE SET	AC-DC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .260 Amps. @ 117V AC
TUNING RANGE--BROADCAST	535-1700KC — **SHORT WAVE** 5.3-18MC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer to reference mark at bottom of left end of dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	"	"	Variable fully closed	"	A5	Adjust for minimum output
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	"	1500KC	"	A6	Adjust for maximum output
200MMFD	"	"	"	Tune for maximum output.	"	A7	" " " "
200MMFD	"	600KC	"	"	"	A8	Rock variable and adjust for maximum output. Repeat last three steps until no further increase can be obtained.
400Ω	"	16MC	SW	16MC	"	A9	Adjust for maximum output
400Ω	"	16MC	"	Tune for maximum output.	"	A10	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

RADIONIC
MODELS Y62W, Y72S

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RADIONIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RADIONIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150		2N513	DSB-403020-150	TA-303	PRSA150-40-40	EZ44315C	Filter - Red
B	30	150							" - Blue
C	30	150		TC47			PRS150-30		" - Yellow
8	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Line Filter
9	.03	400		TP424	S-6-03	TC-13	484-03	DT4S3	Tone Compensation
10	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
11	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
12	.25	200		TP430	S-4-25	TC-2	484-.25	DT4P25	RF Bypass Pwr. Supp.
13	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
14	.001	600		TP404	S-6-001	TC-21	684-001	DT6D1	RF Coupling
15	.0001	600		TP401	MO.5-31	TC-31	1468-0001	DT6T1	Osc. Grid Capacitor
16	6900	300		MC469	MW.3-27	1FM-27	1467-006	1D3D7	Audio Coupling
17	4000	300		MC463	MW.3-24	1FM-24	1467-004	1D3D4	Fixed Padder
18	6900	300		MC469	MW.3-27	1FM-27	1467-006	1D3D7	Ant. Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RADIONIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch			M26	41	SW-A	" " " " "

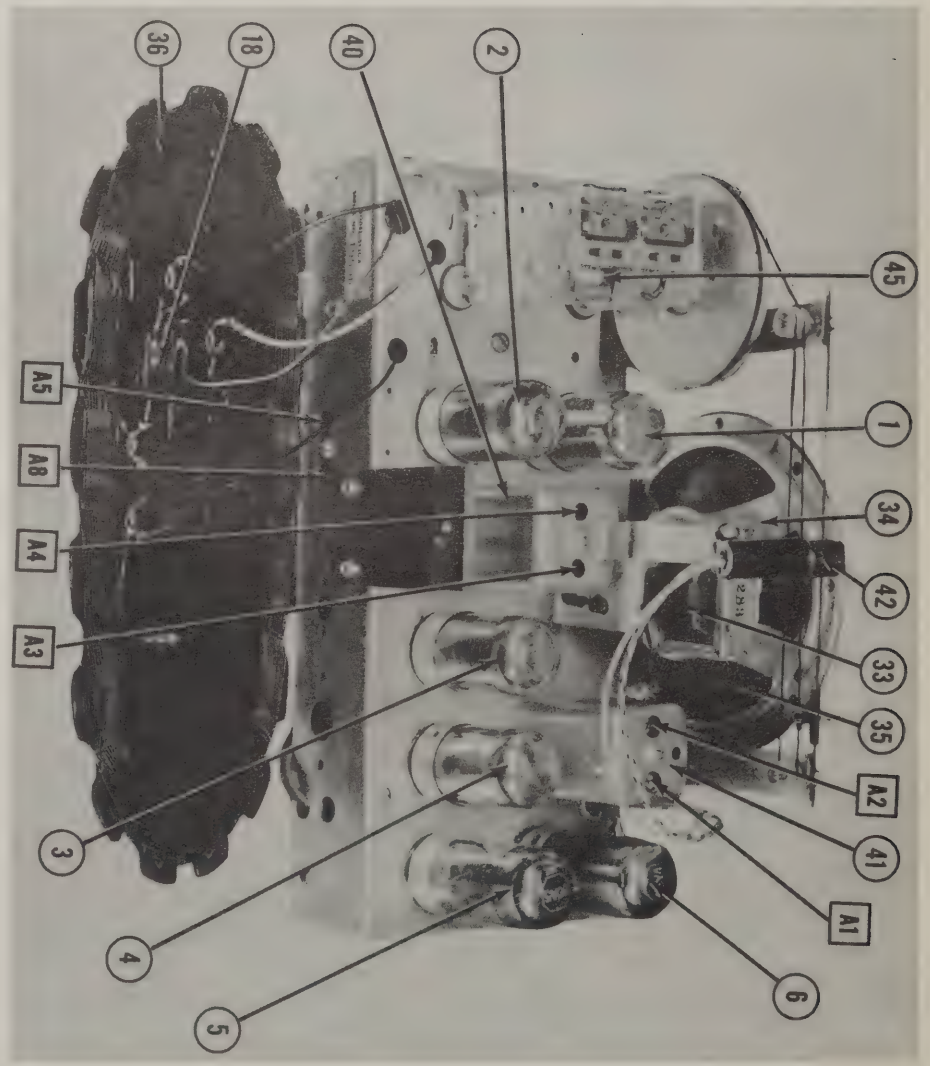
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RADIONIC PART No.	IRC PART No.	IDENTIFICATION CODES
20	3300Ω	½		BTS-3300	Or.-Or.-Red RF Plate Load
21	6800Ω	½		BTS-6800	Blue-Gray-Red Peaking Coil Shunt
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Converter Grid
23	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
25	120Ω	½		BW-½-120	Br.-Red-Br. Parasitic Suppressor
26	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
27	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
28	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
29	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
31	390Ω	1		BTA-390	Or.-White-Br. Filter
32	100Ω	1		BW-1-100	Br.-Blk.-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RADIONIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
33	2000Ω	3.1Ω	220Ω	.9Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			RADIONIC PART No.	JENSEN PART No.	MERIT PART No.	
	FIELD	VC IMP.		ST-107		
34	PM	3.1Ω		Mod. P5-V		
	CONE DIA.	VC DIA.				
35	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

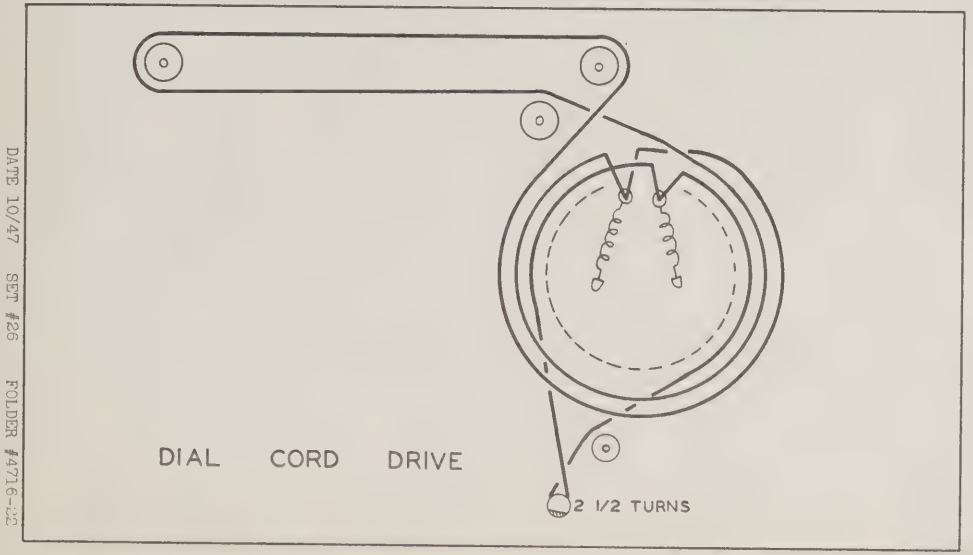
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	RADIONIC PART No.	MEISSNER PART No.	
36	Loop Ant.	.5Ω	.8Ω			
37	SW Ant.Coil	.2Ω	0Ω		14-1044	
38A	BC Osc.Coil		7.5Ω	L-13311A-2		38A & 38B wound on same form
B	SW Osc.Coil		.5Ω			
39A	Wave Trap		31Ω	Z-13309A-1		39A & 39B wound on same form
B	Peaking Coil		1Ω			
40	Input IF	25Ω	25Ω	Z-13902	16-6658	
41	Output IF	13Ω		Z-13903	16-6670	

DIAL LIGHT

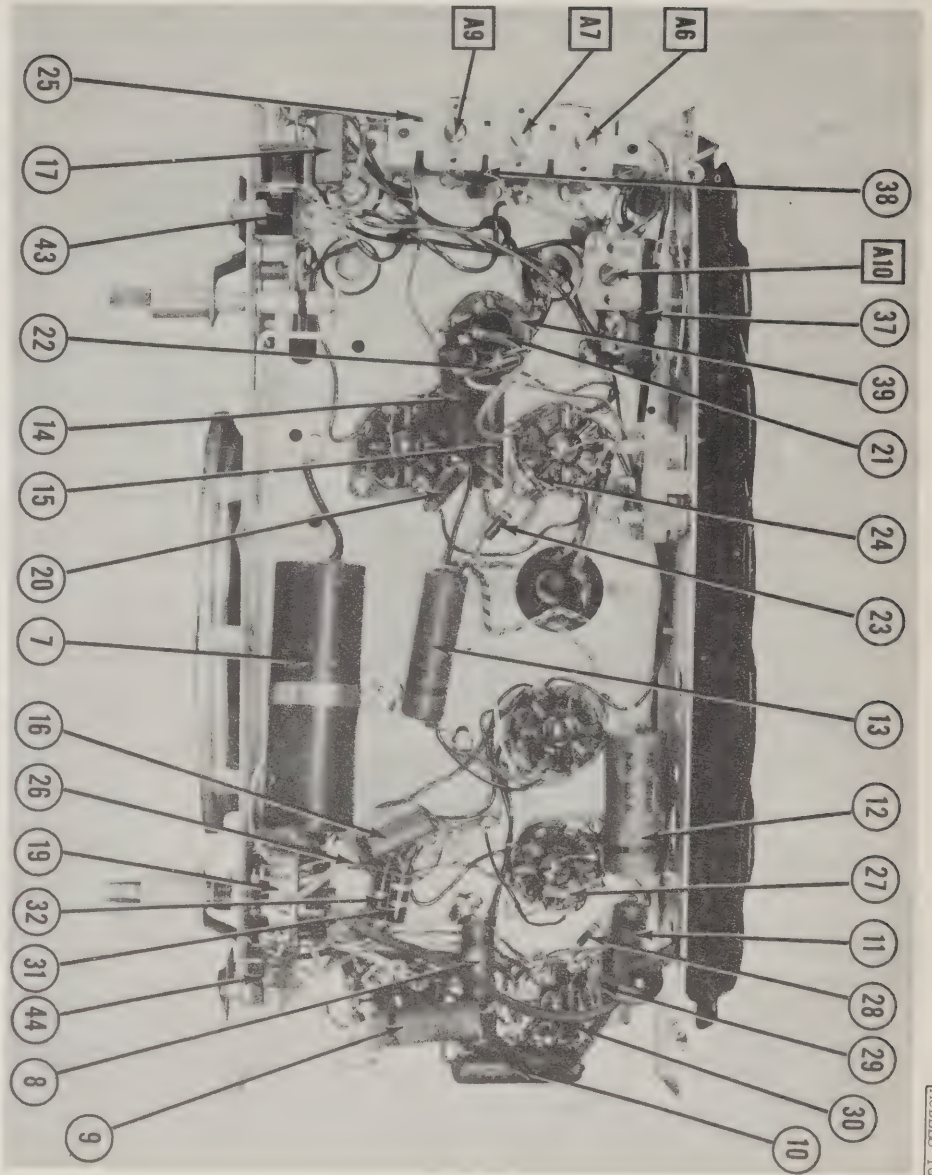
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RADIONIC PART No.		
42	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

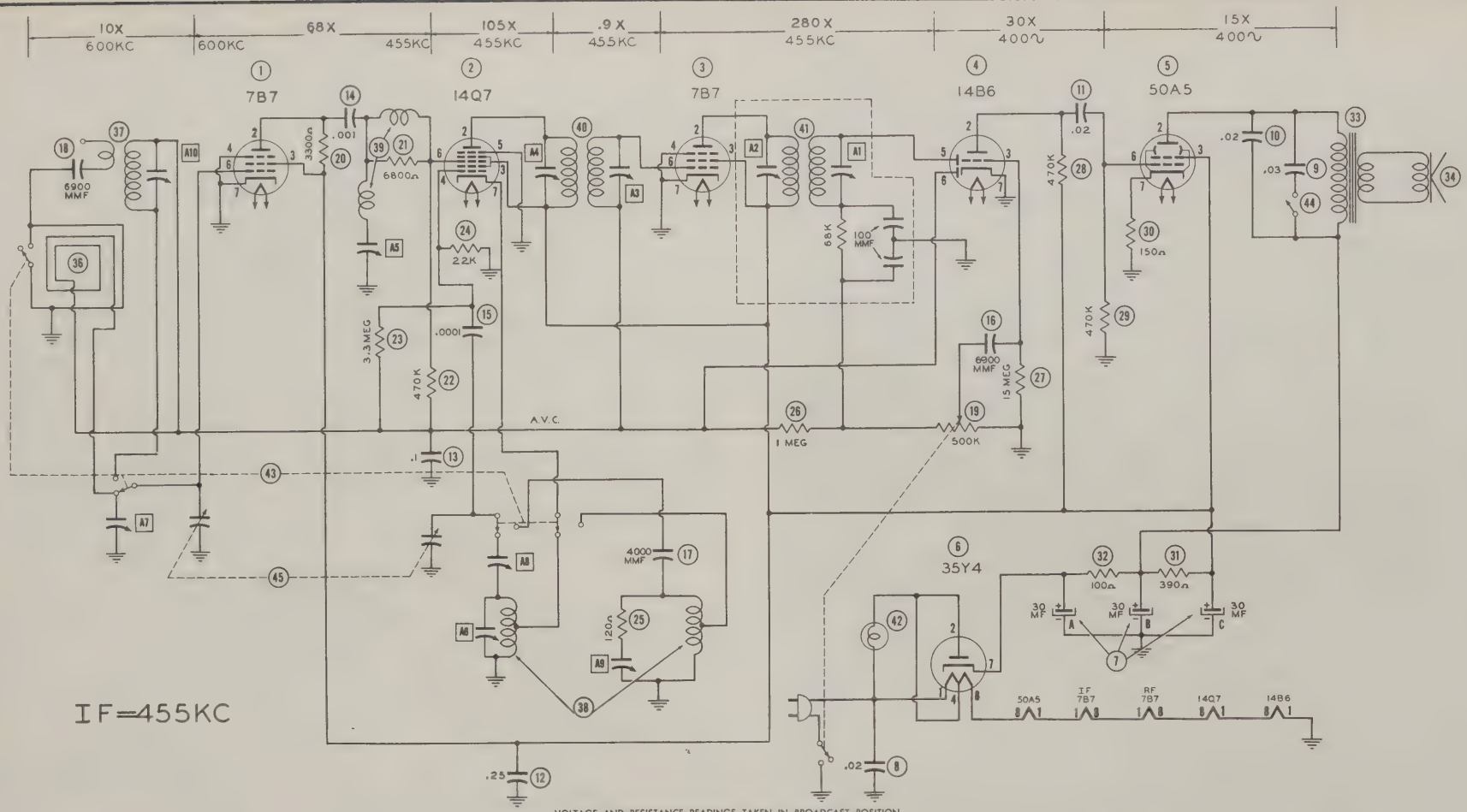
ITEM No.	PART NAME	RADIONIC PART No.	NOTES
43	Band Switch		
44	Tone Switch		
45	2 Gang Var.Cap.		(14-470 MMF, 14-470 MMF)



CHASSIS—BOTTOM VIEW



RADIONIC MODELS Y62W, Y728



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	32VAC	68VDC	93VDC	0V.	0V.	-.7VDC	0V.	25VAC
2	14Q7	13VAC	93VDC	93VDC	-4.8VDC	0V.	-.4VDC	0V.	25VAC
3	7B7	37.5VAC	93VDC	93VDC	0V.	0V.	-.7VDC	0V.	32VAC
4	14B6	0V.	62VDC	-.55VDC	0V.	-.55VDC	-.7VDC	0V.	13VAC
5	50A5	37.5VAC	100VDC	93VDC	0V.	0V.	0V.	5.7VDC	86VAC
6	35Y4	117VAC	112VAC	0V.	112VAC	93VDC	108VDC§	117VDC	86VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	29Ω	83KΩ	90KΩ	0Ω	0Ω	925KΩ	0Ω	33Ω
2	14Q7	12Ω	70KΩ	70KΩ	20KΩ	0Ω	1.4 Meg.	.8Ω	.8Ω
3	7B7	35Ω	80KΩ	80KΩ	0Ω	0Ω	925KΩ	0Ω	29Ω
4	14B6	0Ω	550KΩ	15 Meg.	0Ω	450KΩ	925KΩ	0Ω	12Ω
5	50A5	35Ω	80KΩ	80KΩ	0Ω	INF.	450KΩ	130Ω	80Ω
6	35Y4	108Ω	105Ω	INF.	105Ω	80KΩ	80KΩ	80KΩ	80Ω

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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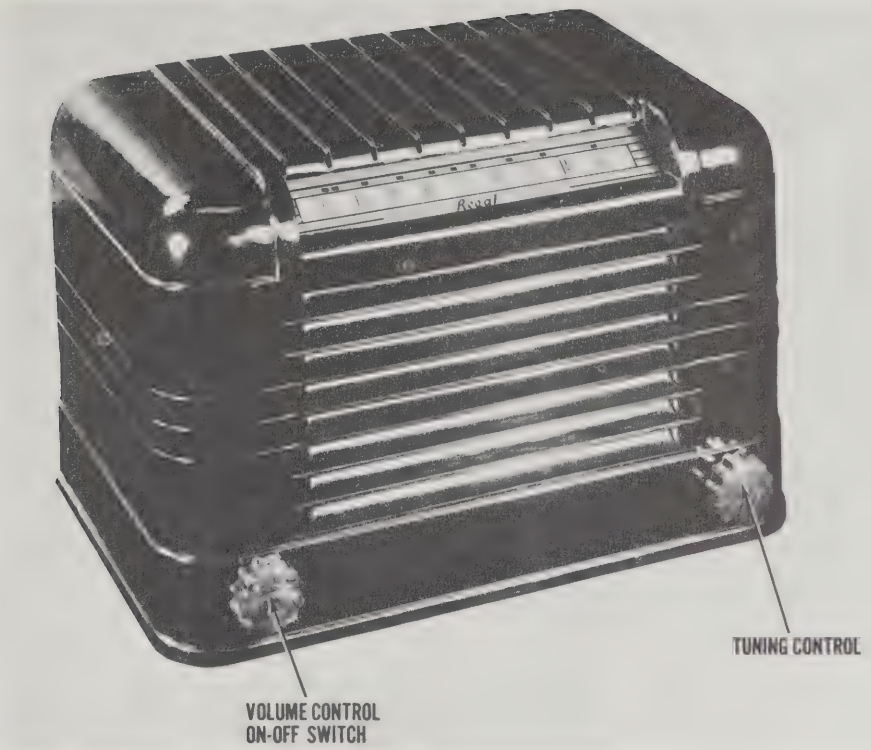
4716-22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



REGAL
MODEL 205

REGAL
MODEL 205

REGAL MODEL 205

TRADE NAME	Regal, Model 205
MANUFACTURER	Regal Electronics Corp., 20 W. 20th St., New York, N.Y.
TYPE SET	AC-DC Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC RATING .260 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to stator of front section of tuning capacitor. Low side to chassis.	455KC	Tuning capacitor fully open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Tune for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-23

PARTS LIST AND DESCRIPTIONS

REGAL MODEL ...

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: REGAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	6AD	
2	IF Amp.	12SK7	12SK7	6N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: REGAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	60-101	2N521	DSB-2x50-150	TA-505	PRSA150-50-50	EZ5515	Filter - Red
B	50	150							" - "
7	.05	400		TP426	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
9	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	" "
11	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supply
13	200	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	AF Plate Bypass
14	200	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter
15	30	500		MC223	MO.5-43	MS-43	1468-00004	5W5Q3	Osc. Grid

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	½	20-101	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

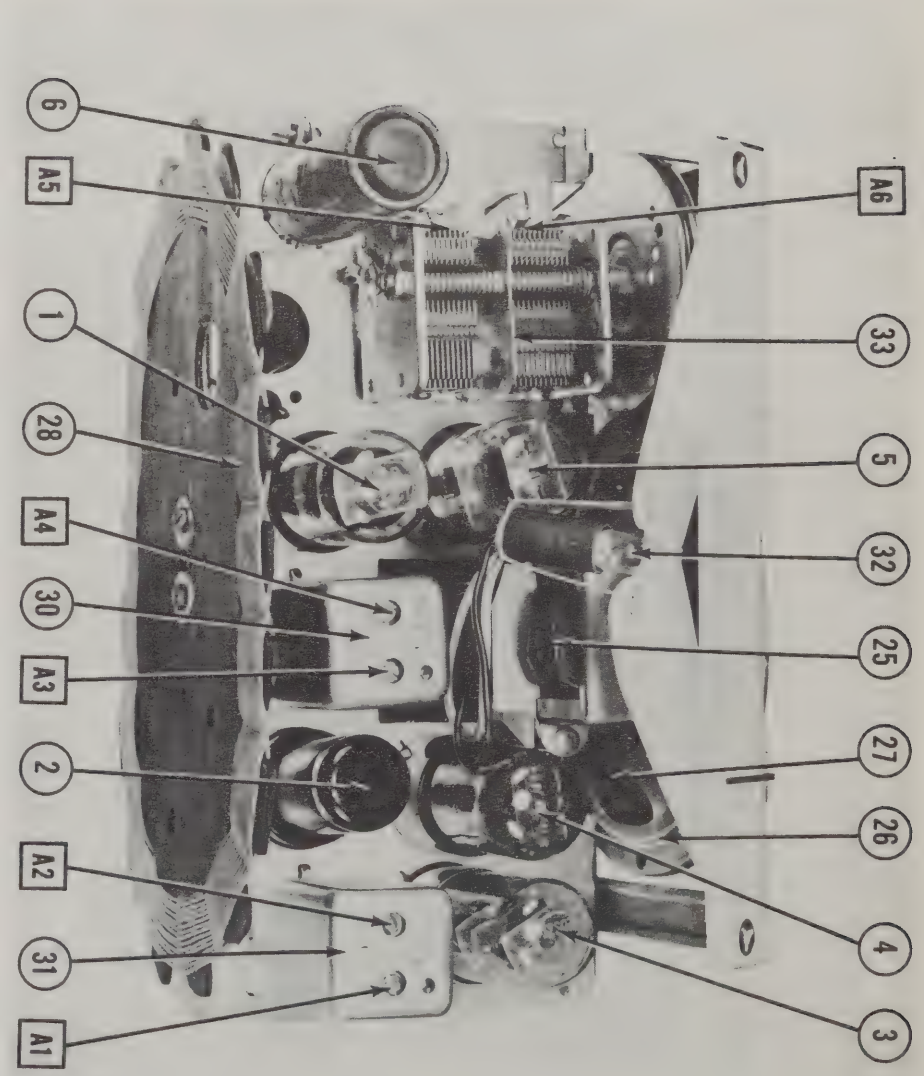
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	IRC PART No.	IDENTIFICATION CODES
17	25KΩ	½		BTS-22K	Red-Grn.-Or. Oscillator Grid
18	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
19	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
20	250KΩ	½		BTS-220K	Red-Grn.-Yl. AF Plate Load
21	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
22	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
23	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter
24	15Ω	1		BW-1-15	Br.-Grn.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: REGAL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
25	3200Ω	2.8Ω	230Ω	.8Ω	Part of 110-101	A-3876	T22S46	A-2928	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			REGAL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
26	PM	2.8Ω	110-101	Mod. P5-X		
	CONE DIA.	VC DIA.				
27	4-3/4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

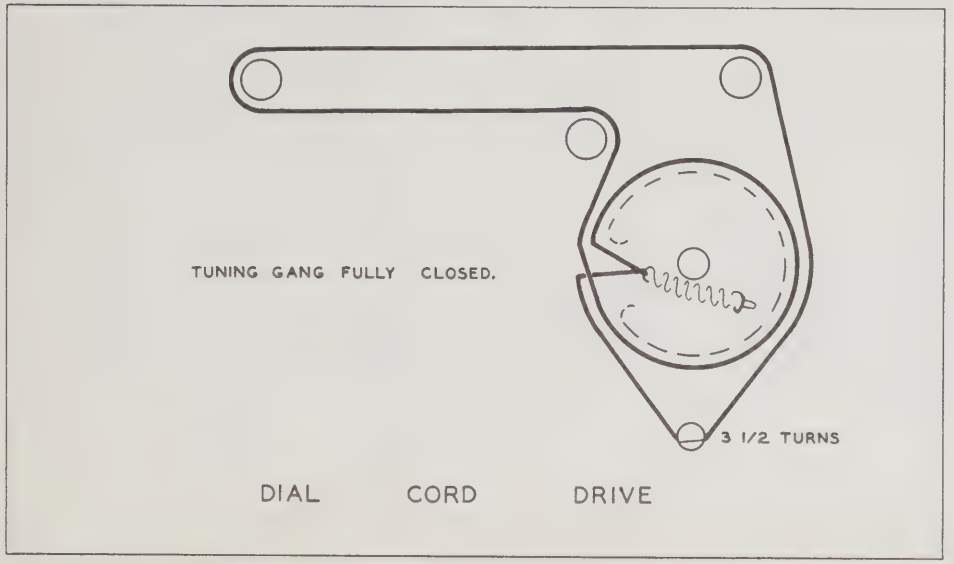
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.
28	Loop Ant.		1.2Ω	30-128	
29	Osc. Coil		6.5Ω	30-101	14-1040
30	Input IF	15Ω	15Ω	30-104	16-6658
31	Output IF	15Ω	15Ω	30-105	16-6660

DIAL LIGHT

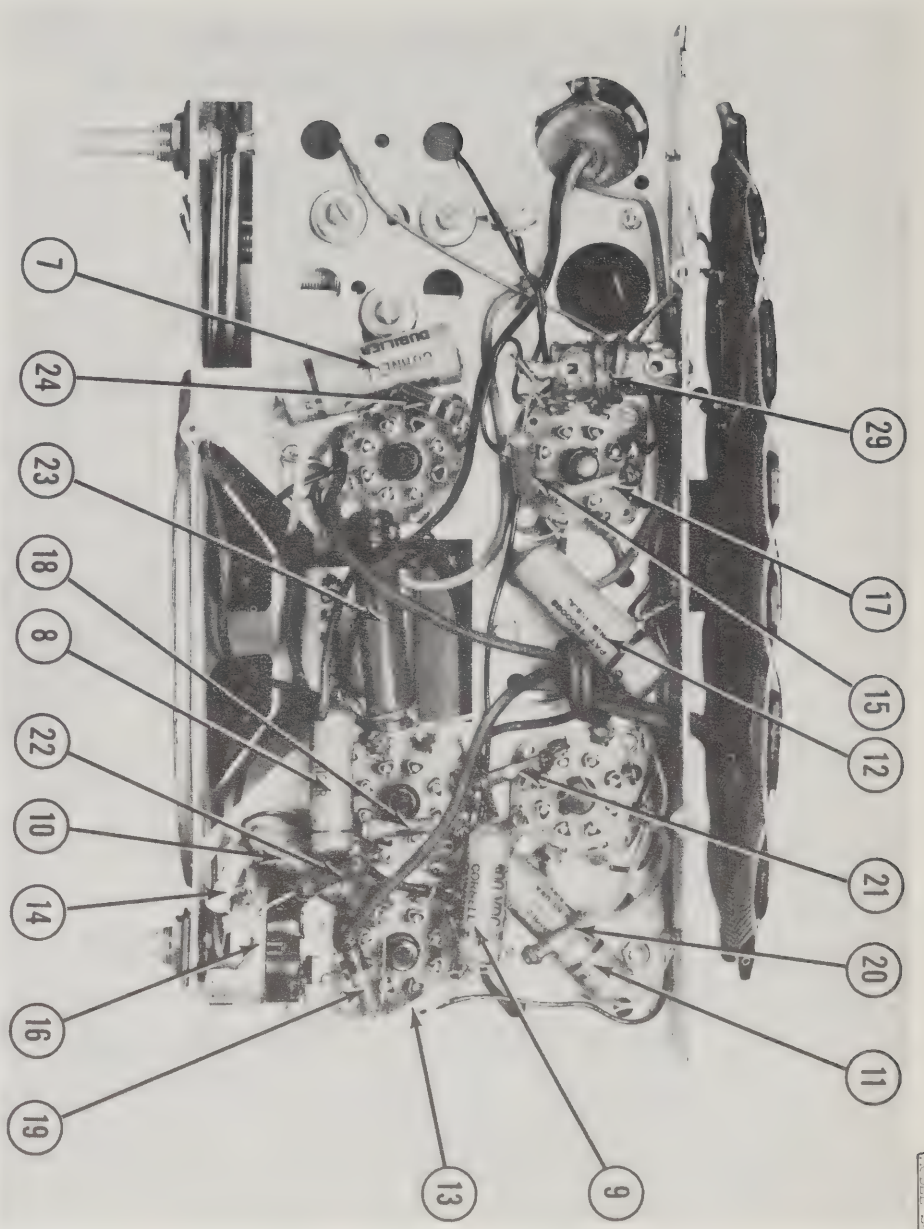
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					REGAL PART No.		
32	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

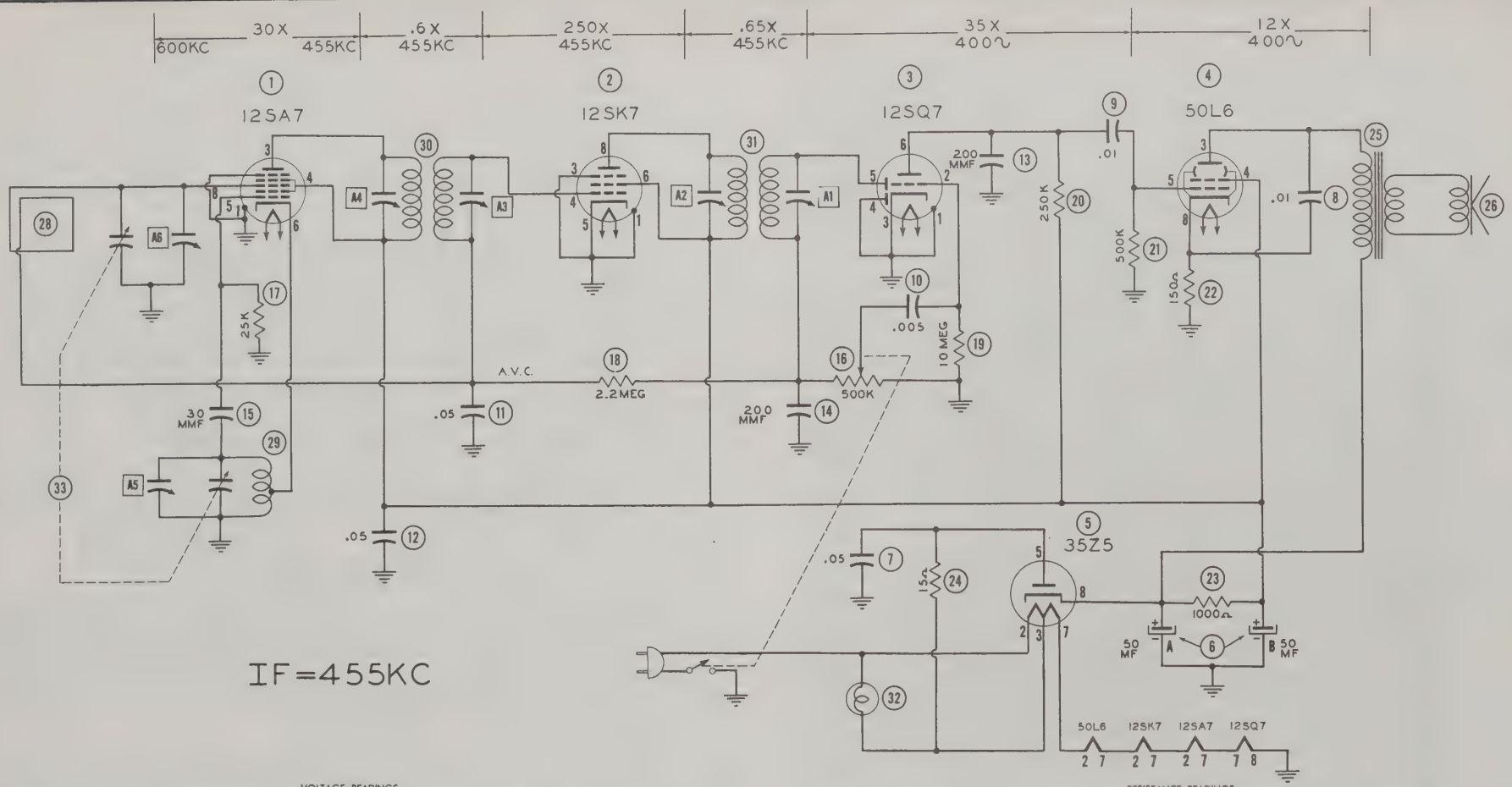
ITEM No.	PART NAME	REGAL PART No.	NOTES
33	2 Gang Var. Cap	40-101	25-472MMF, 43-234 MMF



CHASSIS—BOTTOM VIEW



DATE 10/47 SET #26 FOLDER #4716-23



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	24VAC	90VDC	90VDC	-8.9VDC§	0V.	12VAC	-.8VDC
2	12SK7	0V.	36VAC	0V.	-.8VDC	0V.	90VDC	24VAC	90VDC
3	12SQ7GT	0V.	-.8VDC	0V.	0V.	-.8VDC	82VDC	12VAC	0V.
4	50L6GT	-.5VDC	87VAC	108VDC	90VDC	0V.	-.3VDC	36VAC	6.7VDC
5	35Z5GT	0V.	117VAC	113VAC	0V.	112VAC	0V.	7VAC	118VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	25Ω	50KΩ	50KΩ	25KΩ	.6Ω	13Ω	2.7 Meg.
2	12SK7GT	0Ω	39Ω	0Ω	2.7 Meg.	0Ω	50KΩ	25Ω	50KΩ
3	12SQ7GT	0Ω	10 Meg.	0Ω	0Ω	500KΩ	300KΩ	13Ω	0Ω
4	50L6GT	500KΩ	90Ω	50KΩ	50KΩ	500KΩ	2.7 Meg.	39Ω	150Ω
5	35Z5GT	0Ω	118Ω	115Ω	INF.	130Ω	INF.	90Ω	50KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4716-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SOUND INC.
MODEL MB7E8

SOUND INC. MODEL MB7E8

TRADE NAME	Sound, Inc., Model MB7E8
MANUFACTURER	Sound, Inc., 221 E. Cullerton St., Chicago 16, Ill.
TYPE SET	AC Operated 2 Channel Amplifier
TUBES (FIVE)	Types, 6SQ7 AF Amp., 6SL7GT AF Amp.-Phase Inverter, (2) 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .500 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SQ7	0V.	-.1VDC	.9VDC	.9VDC	.9VDC	115VDC	3VAC	3VAC
2	6SL7GT	0V.	245VDC	3.1VDC	0V.	92VDC	1.2VDC	3VAC	3VAC
3	6V6GT	0V.	3VAC	380VDC	280VDC	0V.	1.4VAC	3VAC	19VDC
4	6V6GT	0V.	3VAC	380VDC	280VDC	0V.	245VDC	3VAC	19VDC
5	6X5GT	0V.	400VDC	325VAC	0V.	325VAC	0V.	400VDC	400VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SQ7	0Ω	1 MEG.	1.5KΩ	1.5KΩ	1.5KΩ	325KΩ	.1Ω	.1Ω
2	6SL7GT	650KΩ	100KΩ	2.7KΩ	650KΩ	325KΩ	1.5KΩ	.1Ω	.1Ω
3	6V6GT	INF.	.1Ω	40KΩ	55KΩ	1.5KΩ	2.3Ω	.1Ω	340Ω
4	6V6GT	INF.	.1Ω	40KΩ	55KΩ	1.7KΩ	100KΩ	.1Ω	340Ω
5	6X5GT	0Ω	40KΩ	180Ω	INF.	170Ω	INF.	40KΩ	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

SOUND INC.
MODEL MB7B8

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SOUND INC. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	6SQ7	6SQ7	8Q	
2	AF Amp. Phase Inv.	6SL7GT	6SL7GT	8BD	
3	Power Output	6V6GT	6V6GT	7AC	
4	Power Output	6V6GT	6V6GT	7AC	
5	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SOUND INC. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	40	450		FP140	DY-40-450	EL-4	AF8J	UP4045	Filter
7	140	350						UP12535	"
8	25	25		TC26	M-25-25	TA-25	PRS25-25	BR252A	Cathode Bypass
9	25	25		TC26	M-25-25	TA-25	PRS25-25	BR252A	" "
10	.002	1600		CW331	TM-16-002	TR-22	1684-002	MD16D2	Output Plate Bypass
11	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
12	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
13	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
14	750	500		MC255	MO.3-38	1FM-28	1467-008	1D3D8	Tone Comp.
15	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	" "
16	50	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	" "

CONTROLS

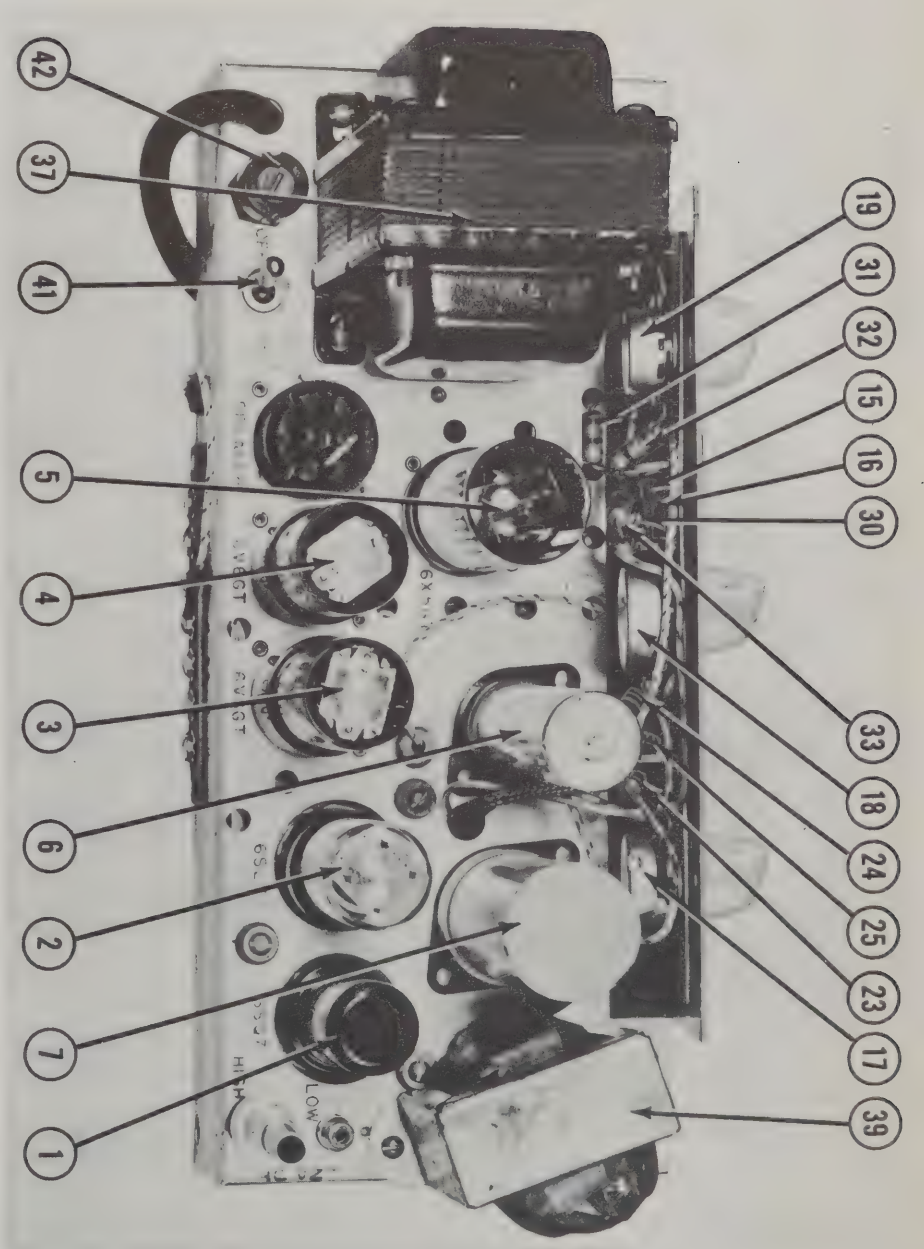
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SOUND INC. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	½		MR48	D13-133	M-60-Z	Mike Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
18A	500KΩ	½		MR48	D13-133	M-60-Z	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
19A	4 Meg.	½					Tone Control
B	Shaft						Attach to 19A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SOUND INC. PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Mic. Amplifier Grid
21	1500Ω	½		BTS-1500	Br.-Grn.-Red Mic. Amplifier Cathode
22	270KΩ	½		BTS-270K	Red-Vi.-Yl. Mic. Amplifier Plate Load
23	1.8 Meg.	½		BTS-1.8 Meg.	Br.-Gray-Grn. Isolation
24	1.8 Meg.	½		BTS-1.8 Meg.	Br.-Gray-Grn. "
25	220KΩ	½		BTS-220K	Red-Red-Yl. "
26	1500Ω	½		BTS-1500	Br.-Grn.-Red 1st AF Cathode
27	270KΩ	½		BTS-270K	Red-Vi.-Yl. 1st AF Plate Load
28	50KΩ	½		BTS-47K	Grn.-Blk.-Or. 2nd AF Plate Load
29	2700Ω	½		BTS-2700	Red-Vi.-Red 2nd AF Cathode
30	820KΩ	½		BTS-820K	Gray-Red-Yl. 2nd AF Grid
31	1.8 Meg.	½		BTS-1.8 Meg.	Br.-Gray-Grn. Tone Compensation
32	1.8 Meg.	½		BTS-1.8 Meg.	Br.-Gray-Grn. " "
33	1.8 Meg.	½		BTS-1.8 Meg.	Br.-Gray-Grn. " "
34	342Ω	5		AB-350	Output Cathode
35	15KΩ	10		AB-15K	Filter
36	5.6Ω	1		BW-1-56	Grn.-Blue-Gold Series Pilot Light-See Note

Note-Some models use three 180Ω ½ watt resistors in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SOUND INC. PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
37	117V AC @ .5A	650V CT @ .06A	5.8V AC @ .6A	5.8V AC @ 1.7A				

CHOKE (DRIVER)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SOUND INC. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
38	Matched to P-P Grids		3300Ω CT				T20A19†		†Connect secondary only

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SOUND INC. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
39	15000 Ω CT	4Ω 5.3Ω 8Ω 16Ω 250Ω 600Ω	520Ω CT	.5Ω .6Ω .7Ω 1.0Ω 15Ω 25Ω			T22S64*		*Drill new mounting holes.

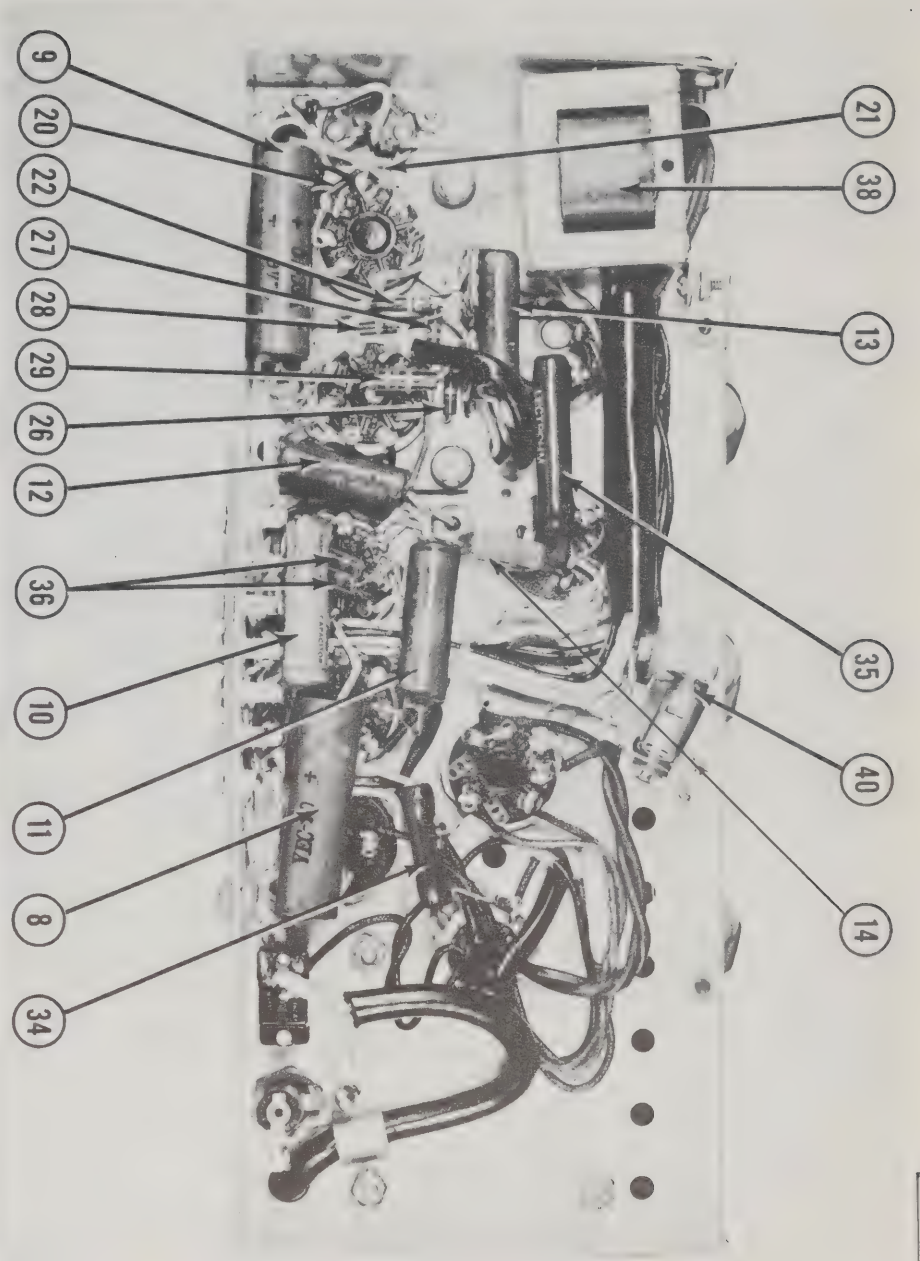
DIAL LIGHT

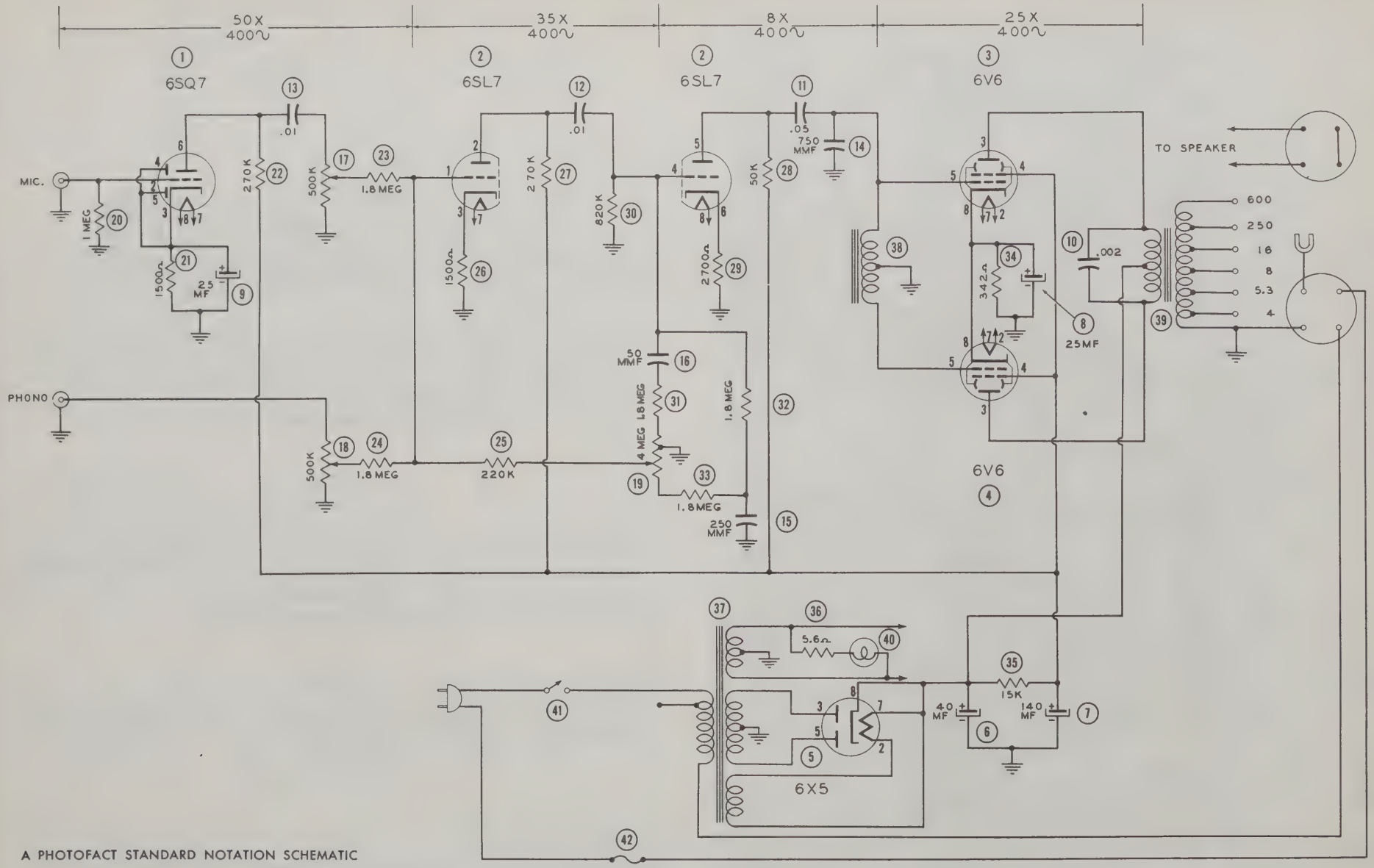
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SOUND INC. PART No.		
40	Bayonet	7.5	0.2	White			Type 51

MISCELLANEOUS

ITEM No.	PART NAME	SOUND INC. PART No.	NOTES
41	Switch		On-Off
42	Fuse		2 Amp.

CHASSIS—BOTTOM VIEW





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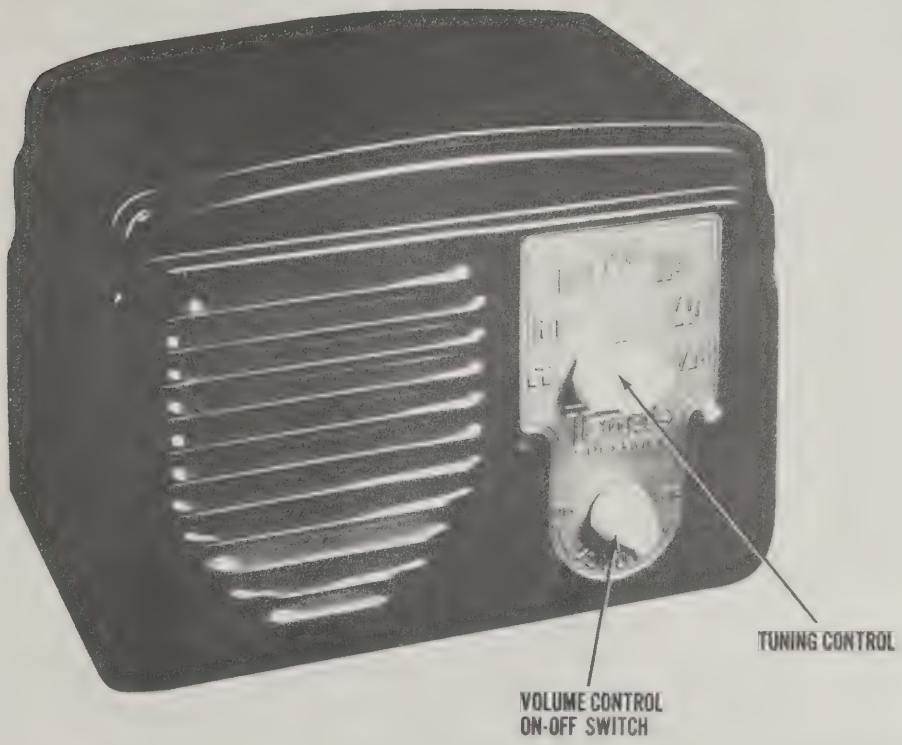
TEMPLE MODELS
G-418, G-419



TEMPLE MODELS
G-418, G-419

TEMPLE MODEL G-418

TRADE NAME	Temple, Model G-418, G-419
MANUFACTURER	Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 12SA7GT Converter, 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	530-1700KC RATING .220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD.	High side to rear stator of tuning cap. Low side to B-..	455KC	Tuning cap. fully open.	Across voice coil	A1,A2.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to reduce hum modulation.
2	68 MMFD	High side to lug on ant. coil to which antenna hank is soldered. Low side to B-.	1700KC	"	"	A3	Adjust for maximum output.
3	68 MMFD	"	1550KC	Tune for maximum output.	"	A4	Adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-25

PARTS LIST AND DESCRIPTIONS

TEMPLE MODEL
8-15, 8-15A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
3	Power Output	50L6GT	50L6GT	7AC	
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TEMPLE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	50	150		2N521	DSB-2x50-150	TA505	PRSA-150-50-50	EZ5515	Filter - Red
B	50	150							" - Green
6	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
7	.005	600		TP405	S-6-005	TC-23	684-005	DT6D5	Audio Coupling
8	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	" "
9	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
10	.12	600		TP418	MPH-6-1	TC-1	684-.1	DT6P1	Line Filter
11	47			MC225	MO.5-45	1FM-45	1468-00005	SW5Q5	Diode RF Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
12	2 Meg.	½	RP16				Volume Control & Sw.

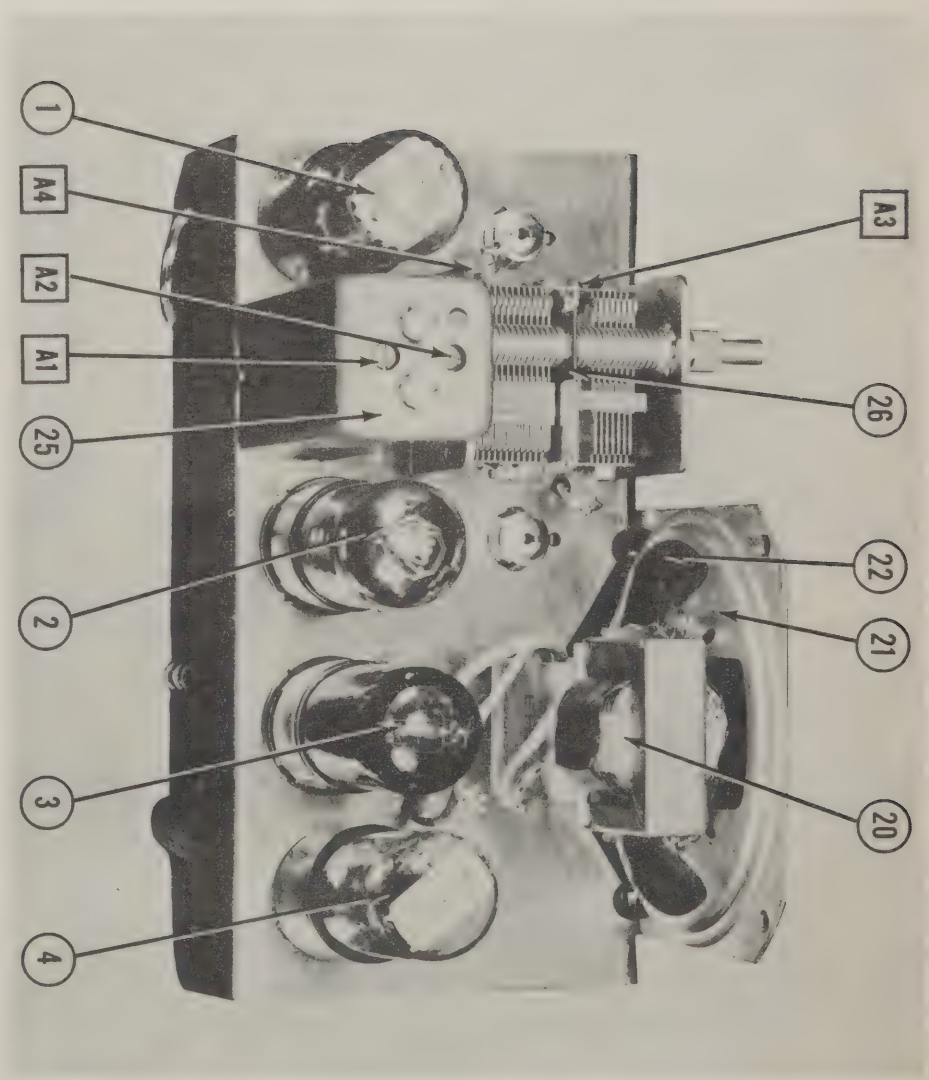
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TEMPLE PART No.	IRC PART No.	
13	12KΩ	½		BTS-12K	Br.-Red-Or. Oscillator Grid
14	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. AVC Network
15	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. AF Grid
16	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
17	330KΩ	½		BTS-330K	Or.-Or.-Yl. Output Grid
18	2200Ω	1		BTA-2200	Red-Red-Red Filter
19	47Ω	2		BW-2-47	Yl.-Vi.-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
20	2000Ω	3.0Ω	135Ω	.6Ω	Part of EH-23	A-3876*	T22S45*	A-2928*	*Panel mounting tab: down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA TEMPLE PART No.	JENSEN PART No.		INSTALLATION NOTES
21	FIELD PM	VC IMP. [illegible]	EH-66	T-113 Mod. P4-X		
23	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

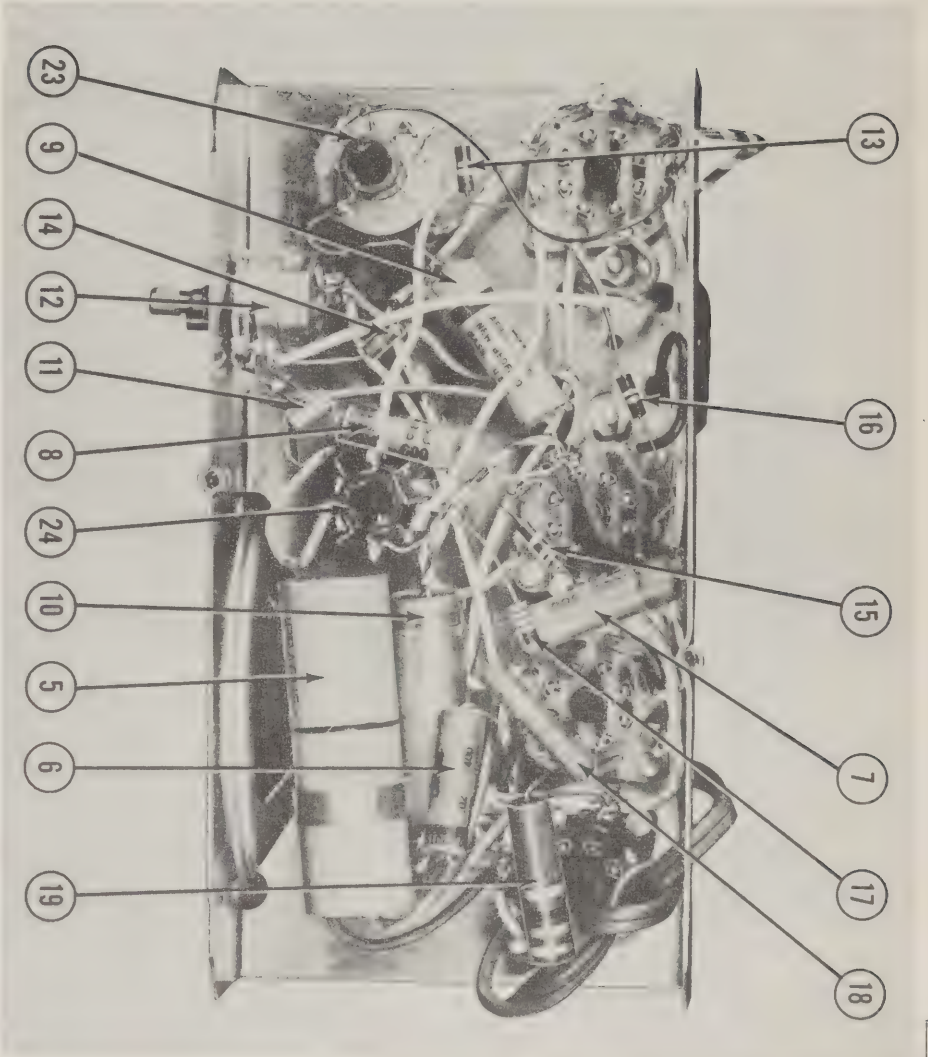
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TEMPLE PART No.	REPLACEMENT DATA MEISSNER PART No.	
23	ant. Coil	31Ω	3Ω	LR22	14-1026	
24	Osc. Coil	[illegible]	[illegible]	LO1	14-1040	Add 50MMF from grid to high side [illegible] cap.
25	Input IF	[illegible]	[illegible]	TM-9	16-6656	

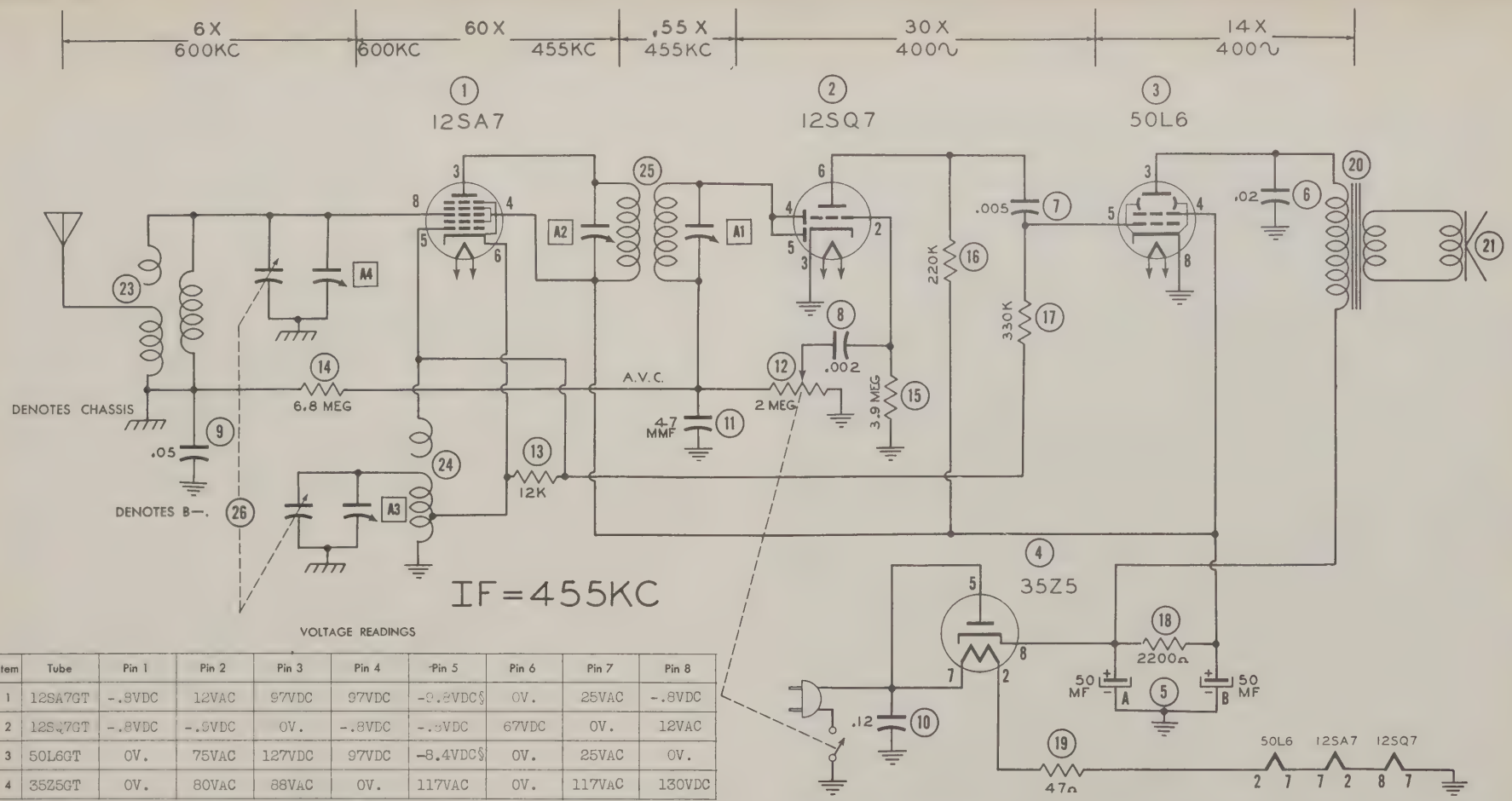
MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
26	2 Gang Var. Cap	CV24	15-446 MMF, 17-146 MMF

CHASSIS—BOTTOM VIEW



DATE 10/47 SET #26 FOLDER #4716-2



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	-.8VDC	12VAC	97VDC	97VDC	-9.2VDC§	0V.	25VAC	-.8VDC
2	12SQ7GT	-.8VDC	-.8VDC	0V.	-.8VDC	-.8VDC	67VDC	0V.	12VAC
3	50L6GT	0V.	75VAC	127VDC	97VDC	-8.4VDC§	0V.	25VAC	0V.
4	35Z5GT	0V.	80VAC	88VAC	0V.	117VAC	0V.	117VAC	130VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	6 Meg.	12Ω	40KΩ	40KΩ	12KΩ	.6Ω	25Ω	6 Meg.
2	12SQ7GT	6 Meg.	4 Meg.	0Ω	2 Meg.	2 Meg.	260KΩ	0Ω	12Ω
3	50L6GT	INF.	70Ω	40KΩ	40KΩ	350KΩ	INF.	25Ω	0Ω
4	35Z5GT	INF.	115Ω	120Ω	0Ω	150Ω	0Ω	150Ω	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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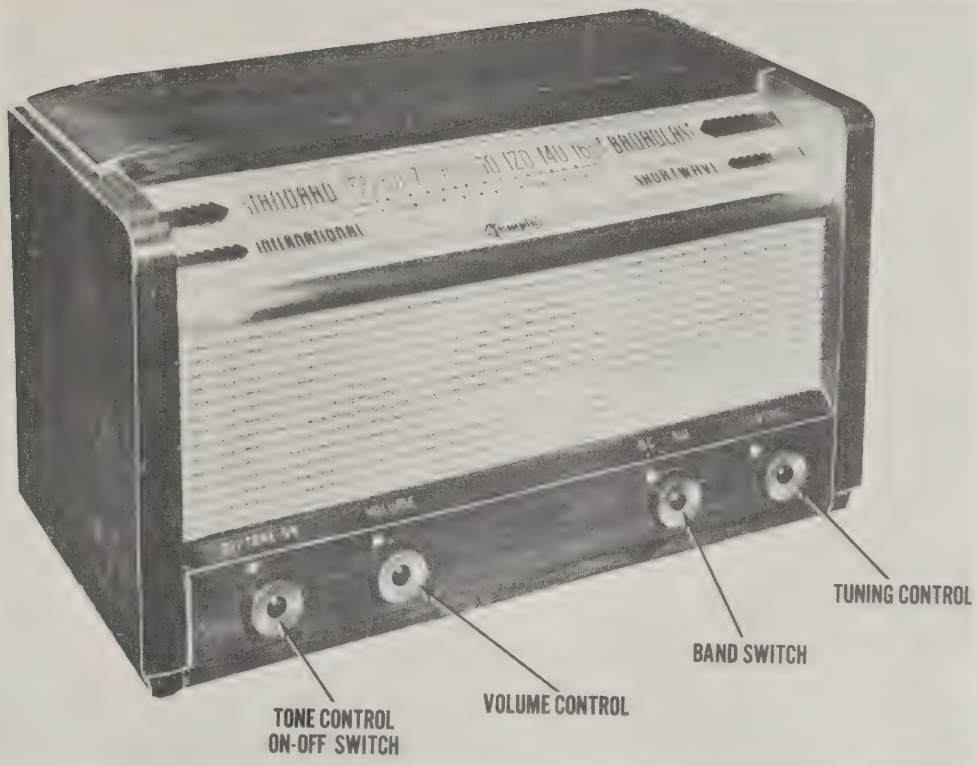
4716-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TEMPLE
MODEL G-522

TEMPLE
MODEL G-522

TEMPLE MODEL G-522

TRADE NAME	Temple, Model G-522
MANUFACTURER	Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET	AC-DC Operated 2 Band Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	532-1700KC
RATING	.230 Amp. @ 117 Volts AC
SHORT WAVE	5.6-12.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to rear stator of tuning cap. Low side to chassis.	455KC	BC (counter clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1700KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1550KC	"	Tune for maximum output.	"	A6	Adjust for maximum output.
4	.01 MFD cap. in series with 450Ω carbon res.	High side to ext. ant. lug. Low side to chassis.	12.5MC	SW (right hand position)	Tuning cap. fully open.	"	A7	" " " "
5	"	"	6MC	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Step 4.
6	"	"	10.5MC	"	"	"	A9	Rock tuning cap. and adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-26

PARTS LIST AND DESCRIPTIONS

TEMPLE MODEL 3-5B4

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	80	150		FP357†	DY-804020-150	EL-340†		UP84215	■ Filter
B	40	150	CE1-3A80						▲ "
C	20	150		TC45		UT-201		BR2015	"
7	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
8	.25	200		TP430	S-4-25	TC-2	484-.25	DT4P25	Tone Compensation
9	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
10	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	" "
11	.25	200		TP430	S-4-25	TC-2	484-.25	DT4P25	AVC Filter
12	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Ext. Ant. Coupling
13	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	RF Bypass Power Supply
14	.1	600		TP418	MPH-6-1	TC-1	684-.1	DT6P1	Line Bypass
15	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
16	100			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Oscillator Grid
17	510								Fixed Padder

†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	½	RP6-504B	MK401	D13-133	AM-60-Z	Volume Control
P	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 18A per instructions
19A	10KΩ	½	RP5-103B	UM118	D13-116	AM-81-Z	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

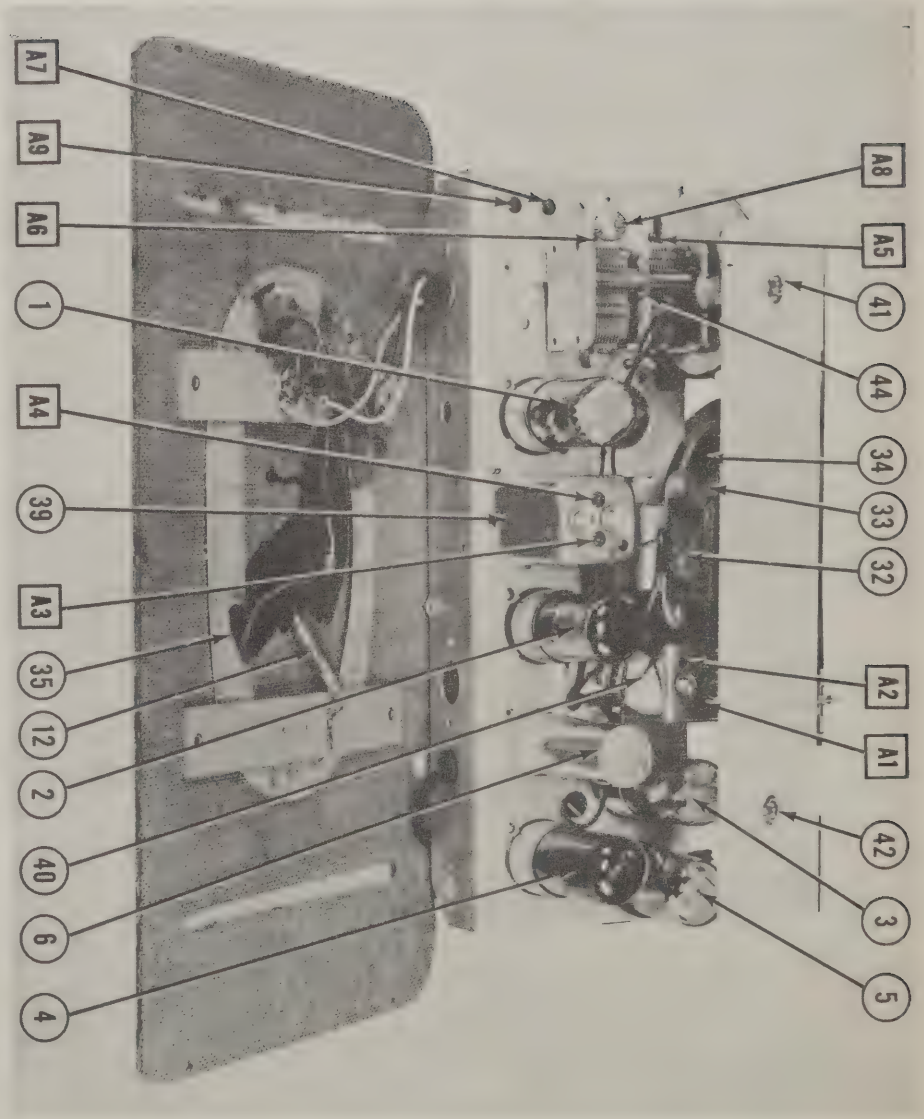
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	IRC PART No.	IDENTIFICATION CODES
20	120KΩ	½		BTS-120K	Br.-Red-Yl. Converter Grid
21	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
22	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. AF Grid
24	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
26	47Ω	½		BW-½-47	Yl.-Vi.-Blk. Output Cathode
27	100Ω	½		BW-½-100	Br.-Blk.-Br. Output Cathode
28	150Ω	1		BW-1-150	Br.-Grn.-Br. Pilot Light Shunt
29	100Ω	1		BW-1-100	Br.-Blk.-Br. Rectifier Ballast
30	47Ω	½		BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor-See Note
31	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
32	1800Ω	3.2Ω	190Ω	.09Ω	851.814	A-3307	T2S4C	A-2928	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TEMPLE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105		
33	PM	3.3Ω	EH6-2	Mod. P5-X		
	CONE DIA.	VC DIA.				
34	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

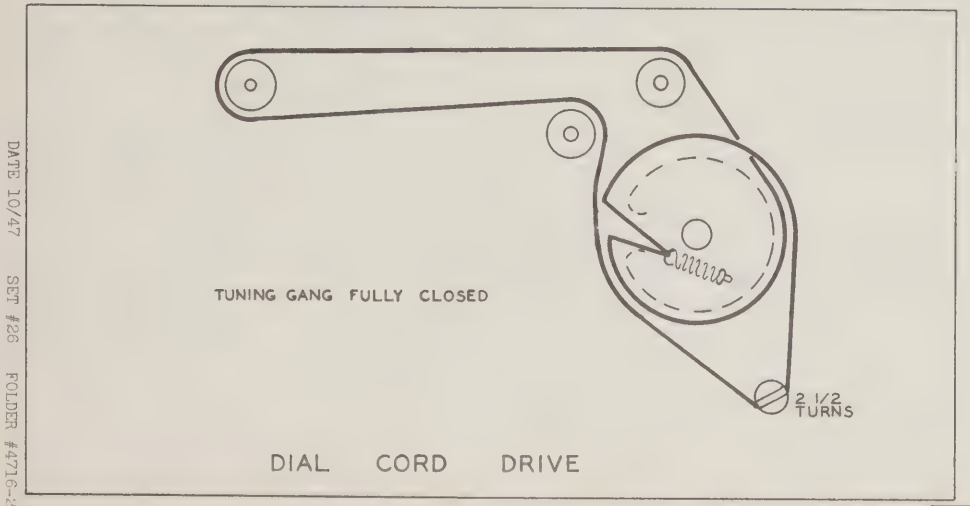
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	MEISSNER PART No.
35	Loop Ant.	.1Ω	1.2Ω	LL17	
36	SW Ant.Coil	.3Ω	0Ω	LO16	
37	Osc. Coil		6.8Ω	LO2	14-1040
38	SW Osc. Coil		0Ω	LO12	
39	Input IF	17Ω	16Ω	TM2-1	16-6658
40	Output IF	16Ω		TM2-3	16-6670

DIAL LIGHT

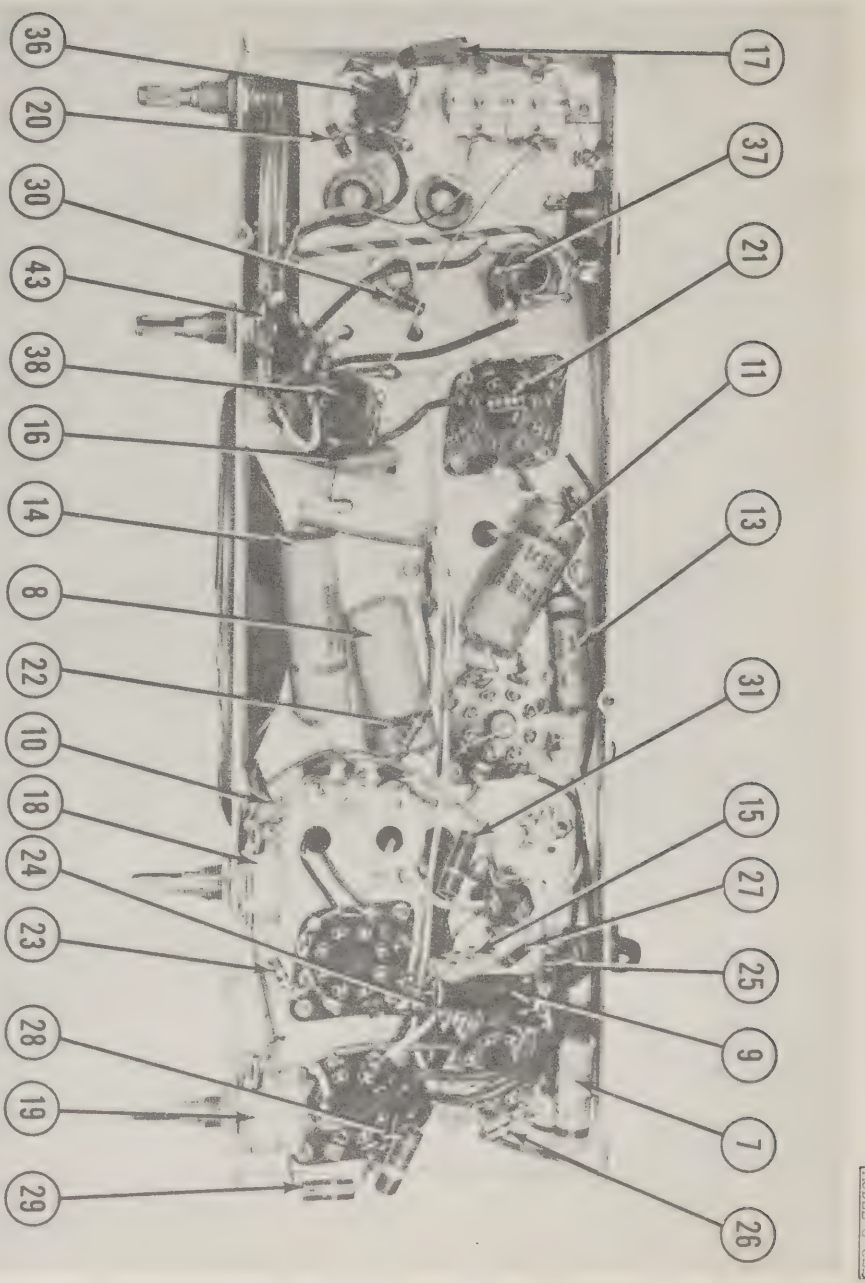
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: TEMPLE PART No.		INSTALLATION NOTES
41	Bayonet	2.9	0.17	White			Type 291
42	"	"	"	"			" "

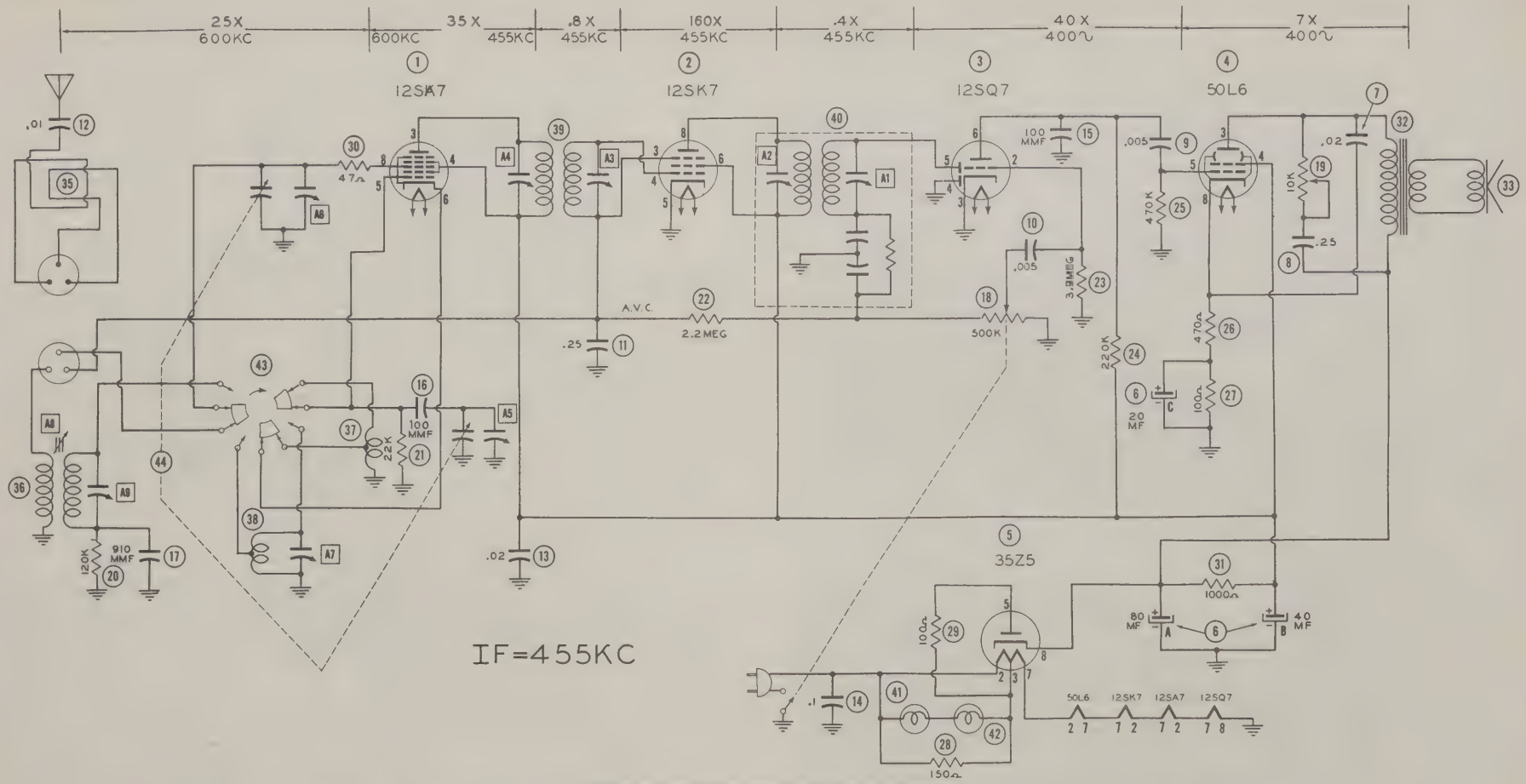
MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
43	Bandswitch		
44	2 Gang Var. Cap	CV6	21-449MMF, 22-187MMF



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	13VAC	75VDC	75VDC	-5.8VDC§	0V.	26VAC	0V.
2	12SK7GT	0V.	26VAC	-.8VDC	-.8VDC	0V.	75VDC	38VAC	75VDC
3	12SQ7GT	0V.	-.8VDC	0V.	0V.	-.8VDC	53VDC	13VAC	0V.
4	50L6GT	0V.	87VAC	75VDC	97VDC	0V.	2.8VDC	38VAC	4.3VDC
5	35Z5GT	116VAC	117VAC	114VAC	0V.	108VAC	0V.	87VAC	102VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	13Ω	50KΩ	50KΩ	22KΩ	.5Ω	26Ω	2.5 Meg.
2	12SK7GT	0Ω	26Ω	2.5 Meg.	2.5 Meg.	0Ω	50KΩ	38Ω	50KΩ
3	12SQ7GT	0Ω	4 Meg.	0Ω	0Ω	500KΩ	270KΩ	13Ω	0Ω
4	50L6GT	INF.	85Ω	50KΩ	50KΩ	500KΩ	150Ω	39Ω	150Ω
5	35Z5GT	112Ω	112Ω	110Ω	INF.	200Ω	INF.	85Ω	50KΩ

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4716-26

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TRUETONE
MODEL D2748

TRUETONE
MODEL D2748

TRUETONE MODEL D2748

TRADE NAME	Truetone, Model D2748 (Ch. 7156)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE--BROADCAST	540-1600KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin #7 (grid) of 12BE6. Low side to B-.	455KC	Tuning capacitor fully open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-27

PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2748

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	40	150	B-9564-1	BRD4215	2N514	M-2x40-150	TA-240		Filter - Red
B	20	150							" - Blue
7	.05	400	BD410503	DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
8	.05	400	BD410503	DT4S5	TP426	S-4-05	TC-15	484-05	Line Isolation
9	.02	400	BD410203	DT4S2	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
10	.003	600	BD610302	DT6D3	TP406	S-6-003	TC-23	684-003	Tone Compensation
11	.01	400	BD410103	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
12	.1	400	BD410104	DT4P1	TP428	S-4-1	TC-1	484-.1	Audio Plate Decoup.
13	.01	400	BD410103	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
14	.1	400	BD410104	DT4P1	TP428	S-4-1	TC-1	484-.1	Shield Isolation
15	.05	200	BD210503	DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
16	220	500	BM74A221	5W5T25	MC240	MO.5-322	1FM-325	1468-00025	Audio Plate Bypass
17	100	500	BM74A101	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500KΩ	½	B-54466-2	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 18A per instructions
19A	500KΩ	½	B-57841-1	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M-26	41	SW-A	" " " " "

RESISTORS

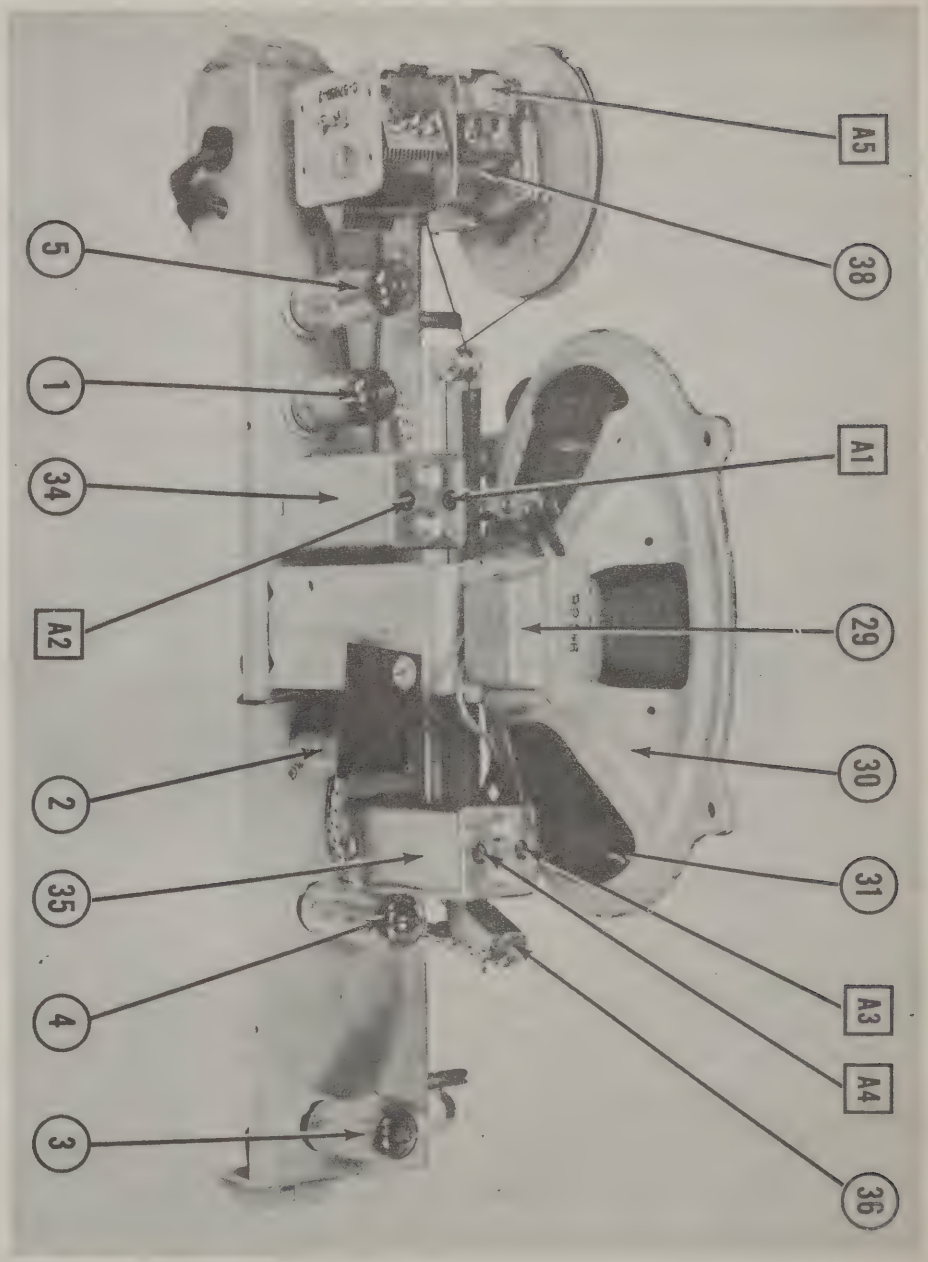
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
20	22KΩ	1/3	BR17B223	BTS-22K	Red-Red-Or. Oscillator Grid
21	68Ω	1/3	BR16B680	BW-½-68	Blue-Gray-Blk. IF Cathode
22	3.3 Meg.	1/3	BR17B335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	6.8 Meg.	1/3	BR17B685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
24	220KΩ	1/3	BR17B224	BTS-220K	Red-Red-Yl. AF Plate Load
25	100KΩ	1/3	BR17B104	BTS-100K	Br.-Blk.-Yl. AF Plate Decoupling
26	150Ω	1/2	BR16C-151	BW-½-150	Br.-Grn.-Br. Output Cathode
27	15KΩ	1		BTA-15K	Br.-Grn.-Or. Bleeder-See Note
28	1500Ω	1	BR17E152	BTA-1500	Br.-Grn.-Red Filter

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	2200Ω	3.6Ω	245Ω	.7Ω	Part of C-57843	A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
30	PM	3.6Ω	C-57843			
	CONE DIA.	VC DIA.				
31	4-15/16" x 7-1/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

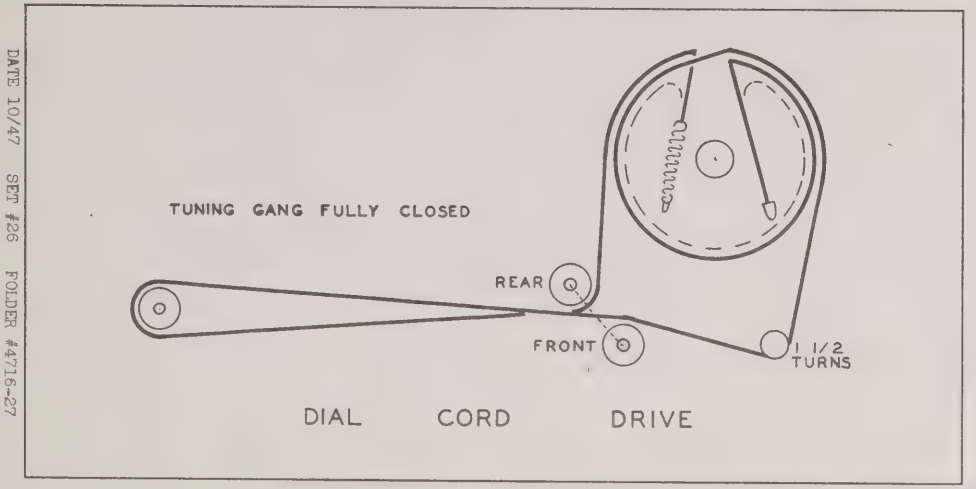
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
32	Loop Ant.	.1Ω	1.7Ω	D-57870		
33	Osc. Coil	1Ω	5.7Ω	B-57842		
34	Input IF	26Ω	18.5Ω	B-56722-1	16-6666	
35	Output IF	19Ω		B-56718-1	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
36	Bayonet	6-8	0.15A	Brown	A-6158		Type 47

MISCELLANEOUS

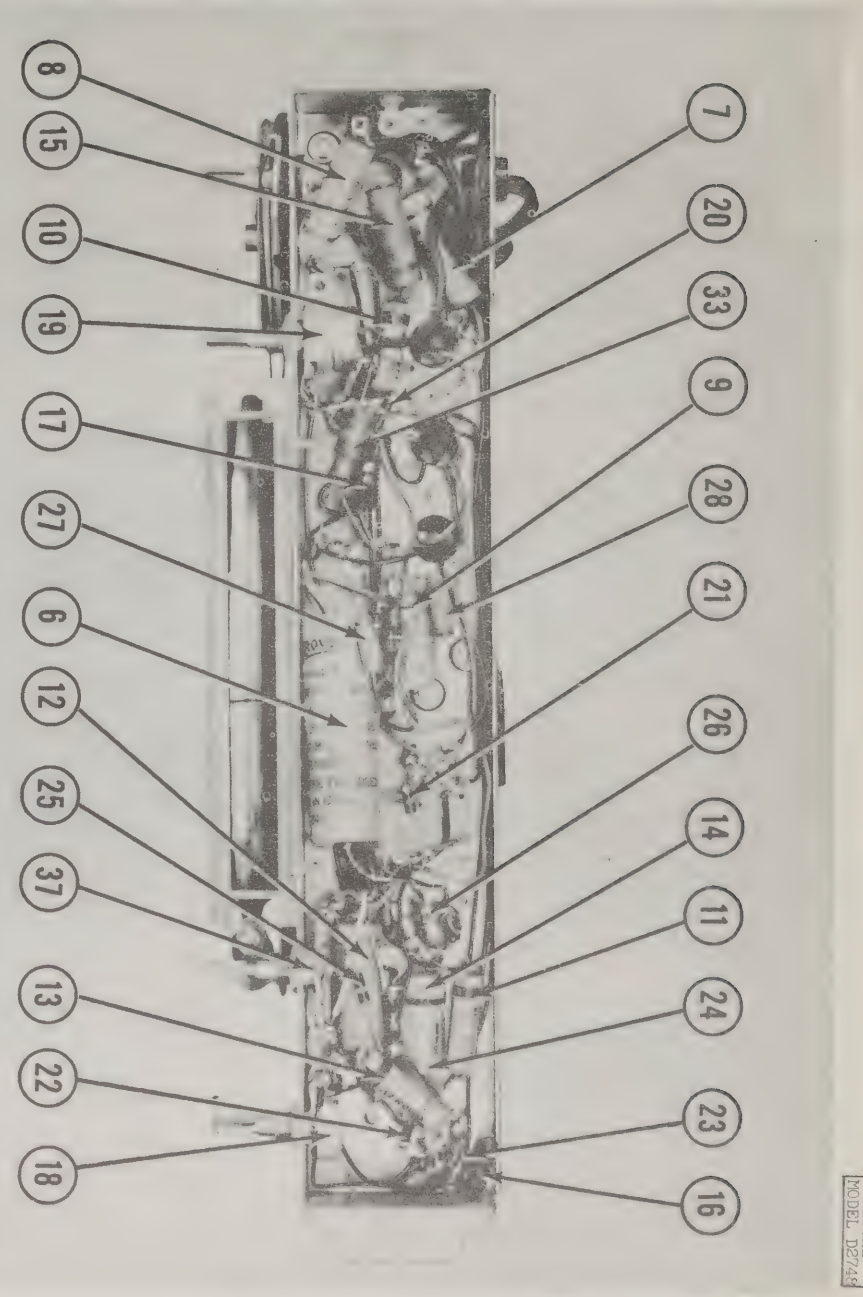
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
37	Switch	B-51576-2	Radio-Phono
38	2 Gang Var. Cap	C-57859-1	12-455MMF, 30-190MMF
A6	Trimmer	C-57879-1	Ant. Adjustment
	Dial Pointer	B-57857-1	
	Dial Scale	C-57862-1	



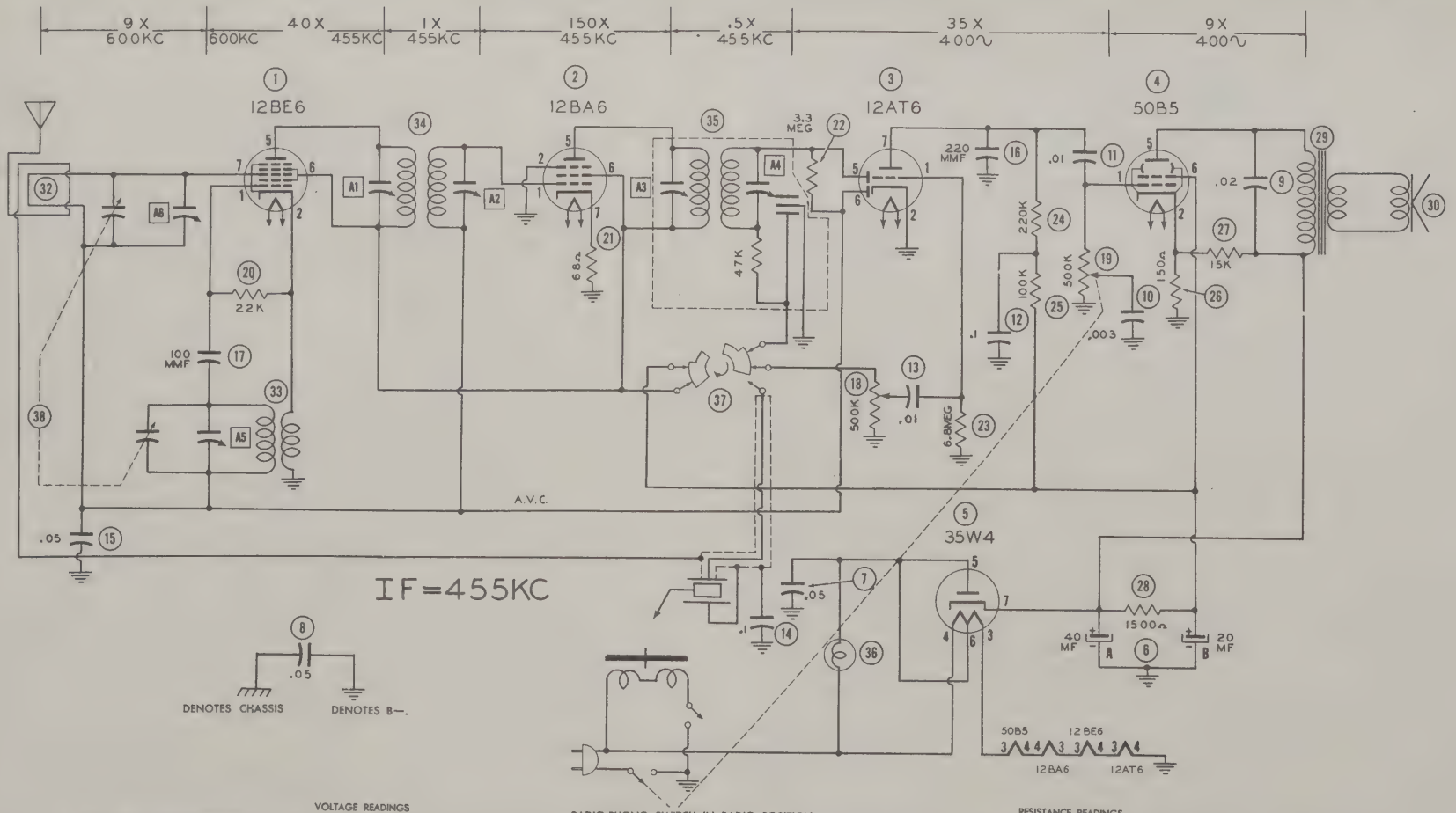
DATE 10/47 SET #26 FOLDER #4716-27

TRUETONE MODEL D2748

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D2748



VOLTAGE READINGS

RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-10VDC§	0V.	24VAC	12VAC	92VDC	-.92VDC	-.35VDC
2	12BA6	-.35VDC	0V.	24VAC	37VAC	92VDC	92VDC	.8VDC
3	12AT6	-.55VDC	0V.	12VAC	0V.	-.4VDC	-.35VDC	50VDC
4	50B5	0V.	5.2VDC	87VAC	37VAC	117VDC	92VDC	0V.
5	35W4	0V.	0V.	87VAC	117VAC	113VAC	113VAC	125VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	.8Ω	21Ω	11Ω	140KΩ	140KΩ	3.5 MEG.
2	12BA6	3.5 MEG.	0Ω	21Ω	31Ω	140KΩ	140KΩ	62Ω
3	12AT6	7 MEG.	0Ω	11Ω	0Ω	520KΩ	3.5 MEG.	460KΩ
4	50B5	500KΩ	150Ω	72Ω	31Ω	140KΩ	140KΩ	500KΩ
5	35W4	INF.	INF.	72Ω	98Ω	95Ω	95Ω	140KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRUETONE MODEL D4620

TRADE NAME	Truetone, Model D4620 (Factory Model 5C12)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Battery Operated Universal Automotive Receiver with Pushbutton Tuning
TUBES (FIVE)	Types, 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	6 Volt Storage Battery
TUNING RANGE—BROADCAST	530-1600KC RATING 5.5 Amp. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 4 (grid) 6SK7. Low side to chassis.	455KC	Tuning slugs out completely	Across voice coil	A1,A2	Adjust for maximum output.
2	.1 MFD.	High side to Pin 8 (grid) of 6SA7. Low side to chassis.	"	"	"	A3,A4.	" " " "
3	30 MMFD	High side to ant. lead. Low side to chassis.	1600KC	"	"	A5,A6	" " " "
4	30 MMFD	"	1400KC	Tune for maximum output.	"	Ant. Coil(44)	Check to see if this adjustment is necessary by adjusting A6 for maximum output. If a large increase in output is obtained then the antenna coil must be adjusted. First repeat Step 3 (adjust A6 at 1600 KC for maximum output) then adjust position of antenna coil for maximum output at 1400KC.
5	30 MMFD	"	1600KC	Tuning slugs completely out	"	A6	Adjust for maximum output. If position of antenna coil was changed repeat Steps 4 and 5 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D4620

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	6SK7	6SK7	8R	
2	IF Amp.	6SK7	6SK7	8X	
3	Det.-AVC-AF	6SQ7	6SQ7	8Q	
4	Power Output	6K6GT	6K6GT	7S	
5	Rectifier	6X5GT	6X5GT	3S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
A	[illegible]	[illegible]	110-[illegible]	FP[illegible]	DY-[illegible]10	5L-[illegible]25	AF32K4A	UP2245C	■ Filter
B	15	350							▲ "
C	20	25							Cath. Bypass
[illegible]	.0[illegible]	[illegible]0[illegible]	100-[illegible]1						Hash Filter
8	.5	120	100-31						" "
9	.5	120	100-31						" "
10	.0035	1600	100-125	OW343	TM-16-004	TR-24	1684-004	MD16D4	Buffer
11	.01	600	100-87	TP410	S-6-01	TC-11	684-01	DT6S1	Output Plate Bypass
12	.02	400	100-26	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.002	600	100-25	TP405	S-6-002	TC-22	684-002	DT6D2	" "
[illegible]	[illegible]	[illegible]	[illegible]0[illegible]-[illegible]0	TP42[illegible]	S-4-1	TC-1	484-.1	DT4P1	IF Cath. Bypass*
15	.05	400	100-13	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
16	.05	400	100-9	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
[illegible]	220	500	C-8F3-10	MC240	MO.5-322	1FM-325	1468-00025	5W5T25	Hash Filter
[illegible]	250	500	129-12	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Pwr. Supp. Bypass
[illegible]	[illegible]	[illegible]	[illegible]9-2	MC345	MO.5-35	1FM-35	146[illegible]-0005	5W5T5	Audio Plate Bypass
[illegible]	100		129-161	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
[illegible]	[illegible]00			MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "
[illegible]	[illegible]	500	129-21	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Osc. Grid Capacitor
[illegible]	500	500	129-2	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	RF Coupling
[illegible]	80	500	129-188						Fixed Padder

*Not used in all models.

CONTROLS

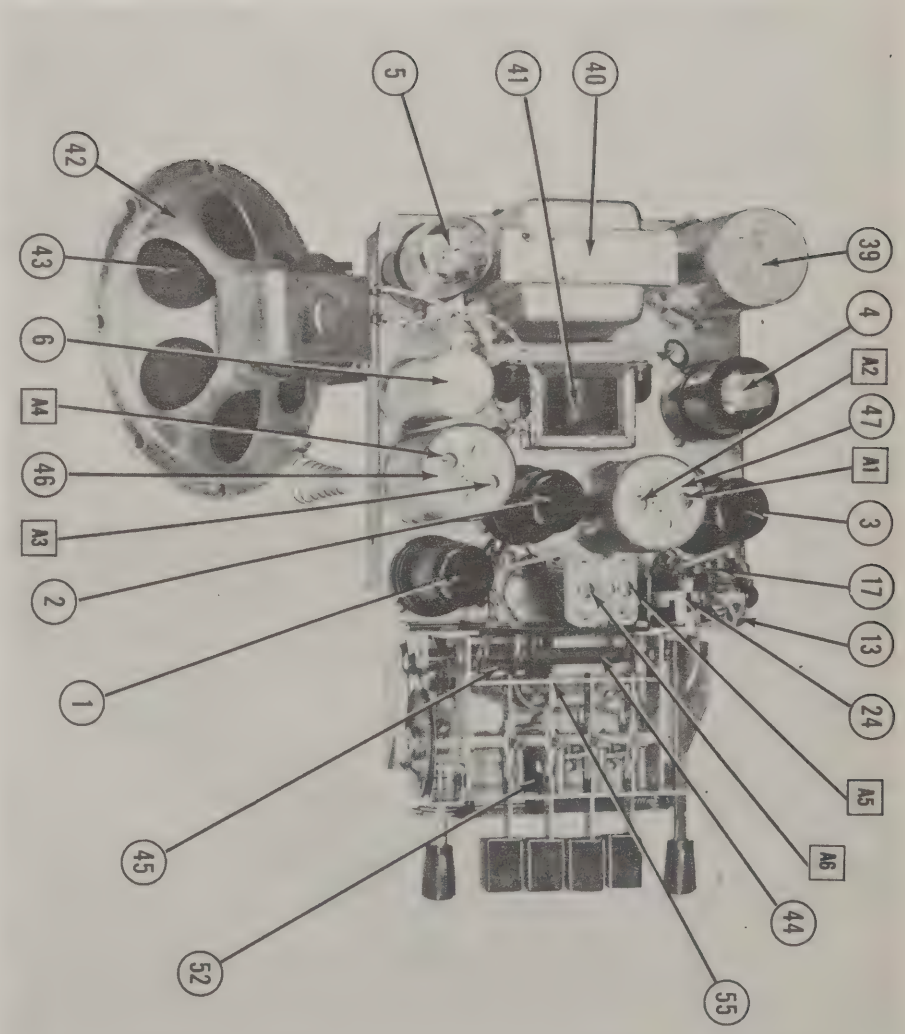
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
[illegible]	1 Meg.	1	1C1276				Volume Control & Switch

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
[illegible]	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
[illegible]	33[illegible]	½	C-9P1-2[illegible]	BTS-33K	Or.-Or.-[illegible]r. Oscillator Grid
[illegible]	1[illegible]K	1	C-9B2-76	BTA-15K	Br.-Grn.-Or. Screen Dropping
[illegible]	1[illegible]Ω	½	C-9B1-52	BW-½-150	Br.-Grn.-Br. IF Cathode
[illegible]	[illegible]30Ω	½	C-9B1-56	BW-½-330	Or.-Or.-Br. IF Cathode - See Note
[illegible]	[illegible].3 Meg.	½	C-9B1-34	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
[illegible]	[illegible]7K	½	C-9B1-33	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
[illegible]	4.7 Meg.	½	C-9B1-35	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
[illegible]	[illegible] K	½	C-9B1-27	BTS-2[illegible]K	Red-Red-Yl. AF Plate Load
[illegible]	[illegible]7 K	½	C-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
[illegible]	[illegible]80	½	C-9B1-60	BTS-680	Blue-Gray-Br. Output Cathode
[illegible]	1,[illegible]0[illegible]	1	C-9A[illegible]-64	BTA-1500	Br.-Grn.-Red Filter
[illegible]	1[illegible]0[illegible]	½	C-9B1-50	BW-½-100	Br.-Blk.-Br. Hash Suppression
[illegible]	1,0[illegible]	½	C-9B1-50	BW-½-100	Br.-Blk.-Br. " "

Note-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA TRUETONE PART No.	MALLORY PART No.	RADIART PART No.	INSTALLATION NOTES
39	Interrupter	6.3	115~	12629	859	5307	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
40	6.3V DC	[illegible]			104295	P-4060**	T22R50**	P-2969**

[illegible] Drill new holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	SEC.	DC RES. PRI.	SEC.	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
41	[illegible]	3.5Ω	[illegible]Ω	.02	P-11C-10230	A-3873	T-2S47	A-2931	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA TRUETONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.				
42	4.7Ω	3.2Ω	B-16B-10236			
	VOICE DIA.	VC DIA.				
43	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	SEC.	REPLACEMENT DATA TRUETONE PART No.	MEISSNER PART No.	
44	Ant. Coil		10Ω	C-211-10961		Items 44 & 45 are slug tuned and ganged together and are part of Tuning Assembly.
45	Osc. Coil	.5Ω	6Ω			
46	Input IF	25Ω	43Ω	108139B	16-6658	
47	Output IF	11Ω	16Ω	108211	16-6660	
48	A. Choke		0Ω	10568		
49	" "		0Ω	10568		
50	" "		0Ω	10566		
51	Ant. Choke		.5Ω	A-16A-13261		

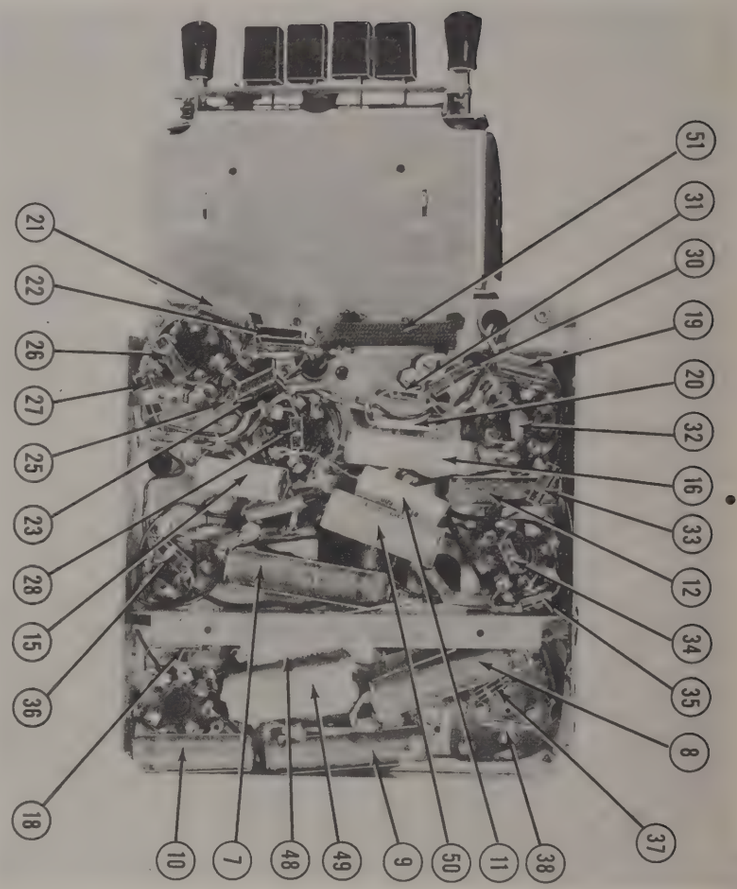
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA TRUETONE PART No.		INSTALLATION NOTES
52	Bayonet	7.5	0.20	White	10797		Type 51

MISCELLANEOUS

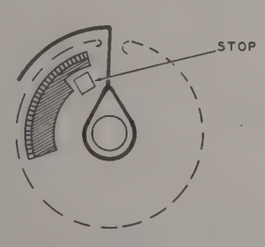
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
53	Fuse	131225	SFE14
54	Spark Plate	11749B	
55	Tuning Assy.	C-211-10961	
	Dial Scale	A-6D-10740	
	Pointer	11121027	

CHASSIS—BOTTOM VIEW



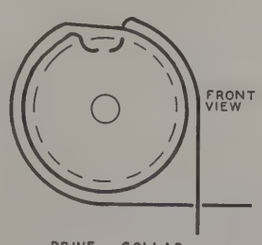
PUSHBUTTON ADJUSTMENTS

1. Make a list of four desired stations.
2. Turn on receiver and allow to warm up for 10 to 15 minutes.
3. Remove four plastic pushbuttons by pulling out.
4. Depress left pushbutton lever and loosen locking screw accessible through hole under pushbutton.
5. Hold in pushbutton lever and tune in first desired station and tighten locking screw. This button is now set.
6. Follow same procedure for remaining buttons.
7. Replace plastic pushbuttons.

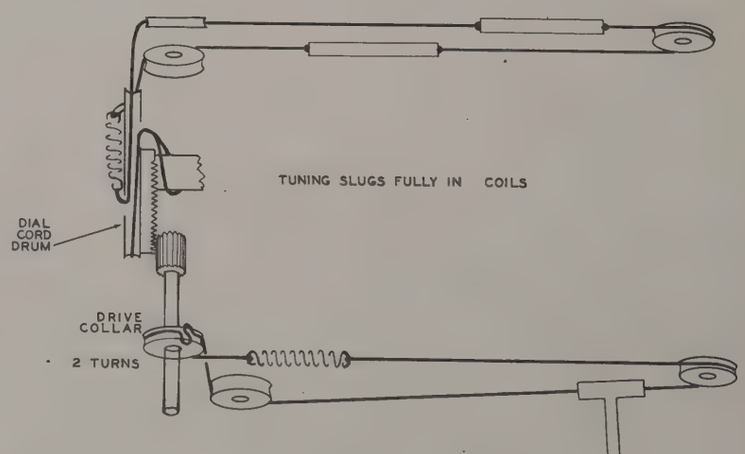


SIDE VIEW

DIAL CORD DRUM



DRIVE COLLAR



DIAL CORD DRUM

TRUETONE MODEL D4620

DATE 10/17 SET #30 FOLDER #4716-

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	0V.	190VDC	80VDC	-9.4VDC§	0V.	6.1VDC	-.1VDC
2	12SK7	0V.	0V.	0V.	-.7VDC	1.3VDC	80VDC	6.1VDC	190VDC
3	12SQ7	0V.	-.7VDC	0V.	-.7VDC	-.6VDC	90VDC	0V.	6.1VDC
4	6K6GT	0V.	6.1VDC	210VDC	190VDC	0V.	0V.	0V.	14.5VDC
5	6X5GT	0V.	6.1VDC	245VAC	0V.	245VAC	0V.	0V.	220VDC

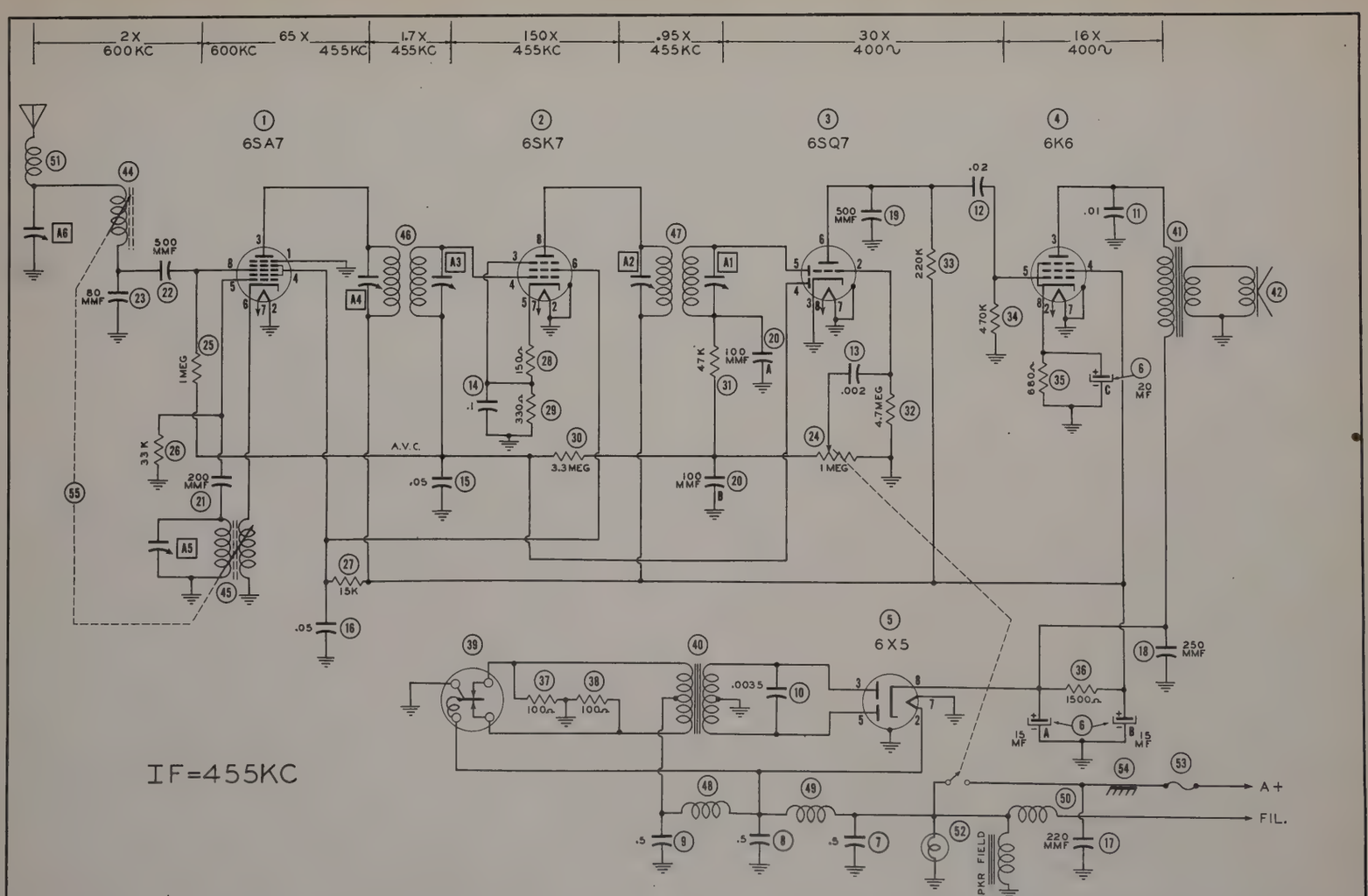
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	0Ω	50KΩ	65KΩ	35KΩ	.4Ω	.1Ω	5 Meg.
2	12SK7	0Ω	0Ω	0Ω	4 Meg.	150Ω	65KΩ	.1Ω	50KΩ
3	12SQ7	0Ω	5 Meg.	0Ω	4 Meg:	1 Meg.	270K	0Ω	.1Ω
4	6K6GT	0Ω	.1Ω	50KΩ	50KΩ	500KΩ	INF.	0Ω	680Ω
5	6X5GT	0Ω	.1Ω	210Ω	INF.	180Ω	INF.	0Ω	50KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



A PHOTOFACT STANDARD NOTATION SCHEMATIC THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4716-28

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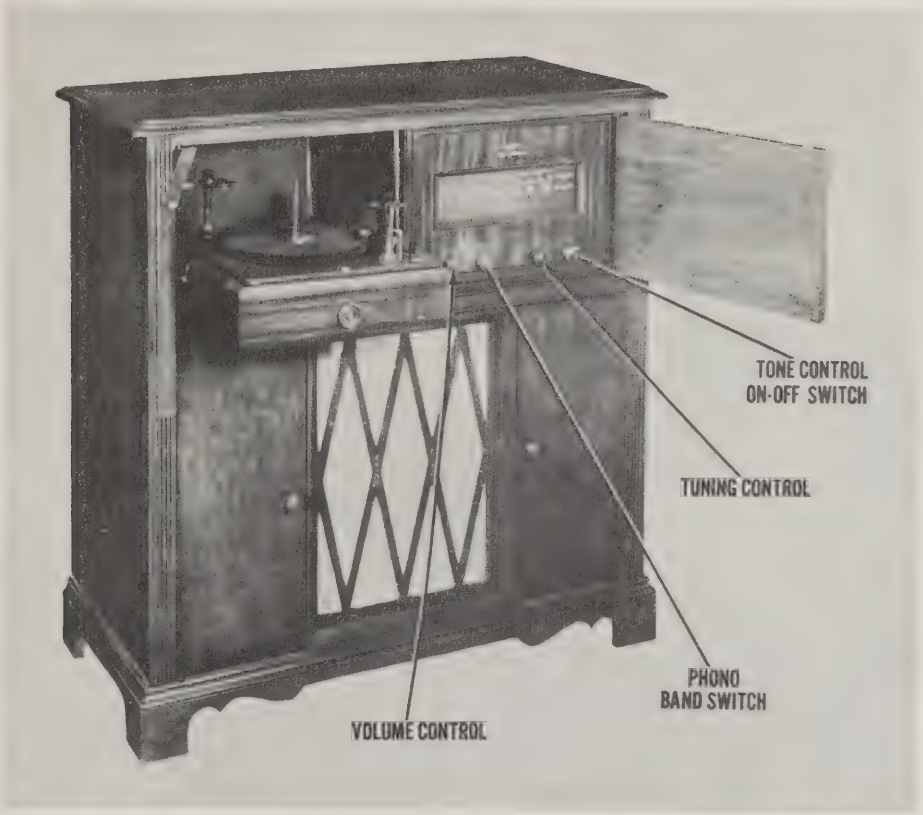
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

U. S. TELEVISION (DUMBARTON)
MODEL 8-16M



U. S. TELEVISION (DUMBARTON)
MODEL 8-16M

UST DUMBARTON MODEL 8-16M

TRADE NAME	U. S. Television (Dumbarton) Model 8-16M
MANUFACTURER	U. S. Television Mfg. Co., 3 W. 61st St., New York, N.Y.
TYPE SET	AC Operated 3 Band Radio-Phono Combination Superheterodyne Receiver
TUBES (EIGHT)	Types, 7A7 RF Amp., 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7A4 Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	535-1625KC
RATING	.770 Amp. @ 117 Volts AC
SHORT WAVE	1.57-6MC, 5.1-19MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer to left end of dial calibration lines. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC (fully counter-clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
2	200MMFD.	High side to terminal "A" of ant. terminal strip. Low side to chassis.	1500KC	"	1500KC	"	A5,A6, A7	" " " "
3	200MMFD.	"	600KC	"	600KC	"	A8	Rock tuning cap. and adjust for maximum output. Repeat steps 2 and 3 until no further improvement can be made.
4	400Ω	"	5MC	SW I 1st position clockwise	5 MC	"	A9	Adjust for maximum output.
5	400Ω	"	"	"	Tune for maximum output.	"	A10,A11	Rock tuning cap. and adjust for maximum output.
6	400Ω	"	15MC	SW II (2nd position clockwise)	15MC	"	A12	Adjust for maximum output.
7	400Ω	"	"	"	Tune for maximum output.	"	A13,A14	Rock tuning cap. and adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-29

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		U.S. TELEVISION PART No.	STANDARD REPLACEMENT		
1	RF Amp.	7A7	7A7	8V	
2	Converter	7Q7	7Q7	8AL	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Phase Inverter	7A4	7A4	5AC	
6	Power Output	6V6GT	6V6GT	7AC	
7	" "	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

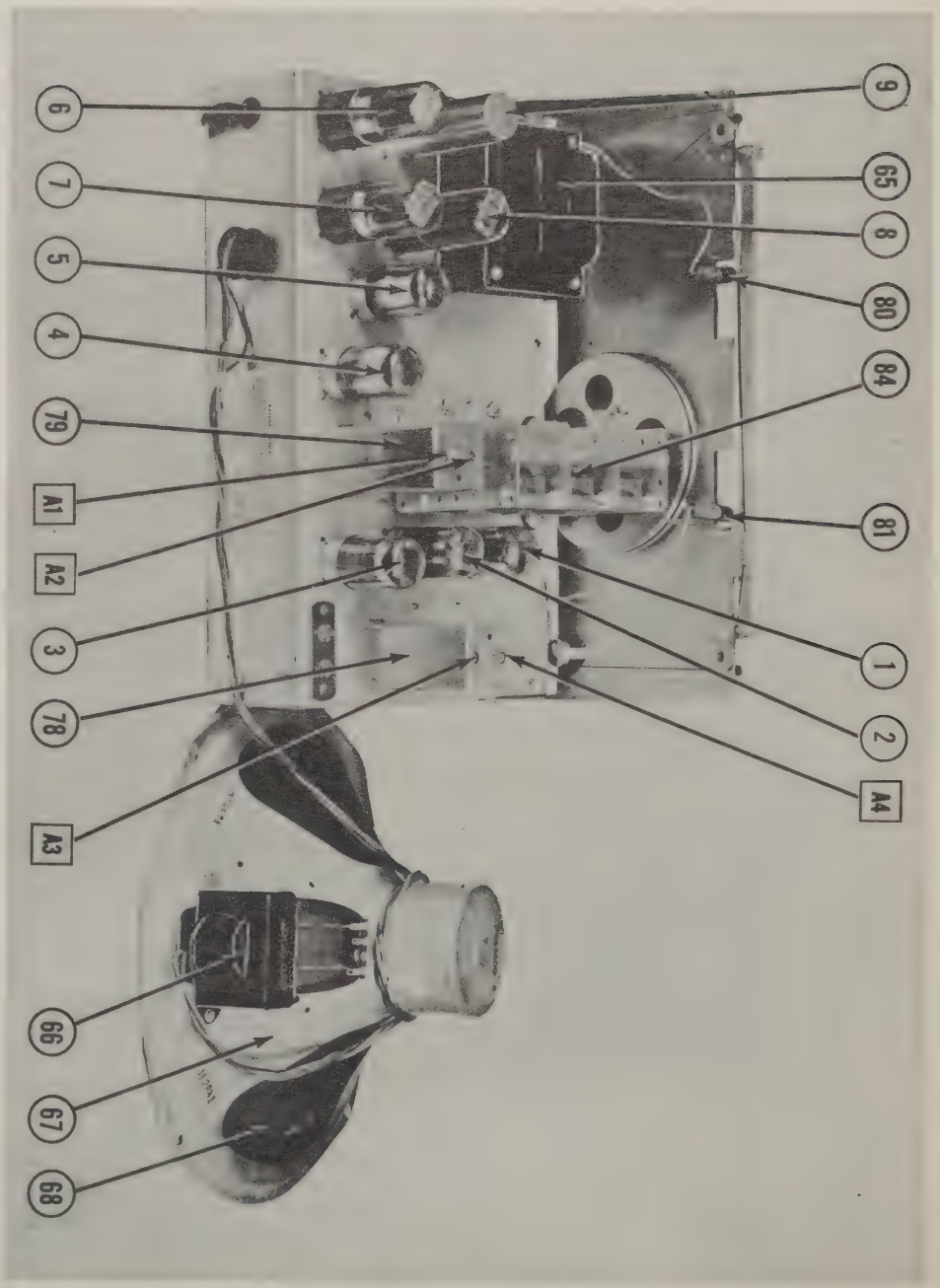
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	U. S. TELEVISION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
9A	15	450	PA4311-1	FP390	DY-3x15-450	EL-344	AF444J	UP15D145	▲ Filter
B	10	450							"
C	15	450							■ "
10	20	25	PA-4386-3	TC26	M-25-25	TA-25	PRSA25-25	BR202A	Cathode Bypass
11	4	450	PA-4300-3	TC70	M-4-450	UT-4	PRSA450-4	BR445	Screen Bypass
12	50	25	PA-4386-2	TC29	M-50-25	TA-50	PRSA25-50	BR502	Cathode Bypass
13	.002	600	PC40GM-202	TP405	S-6-002	TC-22	684-002	DT6D2	Tone Comp.
14	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	" "
15	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
16	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	" "
17	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	" "
18	.02	400	PC40GK-203	TP423	S-4-02	TC-12	484-02	DT4S2	" "
19	.05	200	PC40GK-503	TP426	S-4-05	TC-15	484-05	DT4S5	IF Cathode Bypass
20	.05	200	PC40GK-503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
21	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
22	.05	200	PC40GK-503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
23	.05	200	PC40GK-503	TP426	S-4-05	TC-15	484-05	DT4S5	RF Cathode Bypass
24	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
25	100	500	MC60G-101	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
26	100	500	MC60G-101	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
27	100	500	MC60G-101	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "
28	51	500	MC60F-510	MCB225	MO.5-45	1FM-45	1469-00005	5W5Q5	Osc. Grid
29	200	500	MC60G-201	MCB237	MOS.5-32	MS-32	1469-0002	5R5T2	Fixed Padder
30	1130		PA-4387-1						" "
31	2925		PA-4387-2						" "
32	5	500	MC60F-050	MCB205	MOS.5-55	MS-55	1469-000005	5R5V5	RF Coupling
33	240	500	MC60G-241	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	" "

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	U. S. TELEVISION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
34A	2 Meg.	½	PA4403	MK403	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 34A per instructions
35A	250KΩ	½	PA4402	MK400	D13-130	AM-64-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 35A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	U. S. TELEVISION PART No.	IRC PART No.	
36	1 Meg.	½	R1S-105	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
37	68Ω	½	R1S-681	BTS-68Ω	Gray-Red-Br. RF Cathode
38	330Ω	½	R1S-331	BW-½-330	Or.-Or.-Br. Parasitic Suppressor
39	15Ω	½	R1S-150	BW-½-15	Br.-Grn.-Blk. Parasitic Suppressor
40	20KΩ	½	R1G-203	BTS-22K	Red-Blk.-Or. Oscillator Grid
41	30Ω	½	R1G-300	BW-½-33	Or.-Blk.-Blk. Parasitic Suppressor
42	30KΩ	2	R4G-303	BT-2-33K	Or.-Blk.-Or. Bleeder
43	30KΩ	2	R4G-303	BT-2-33K	Or.-Blk.-Or. Bleeder
44	22KΩ	1	R2S-223	BTA-22K	Red-Red-Or. "
45	300Ω	½	R1G-301	BW-½-330	Or.-Blk.-Br. "
46	620Ω	½	R1G-621	BTS-680	Blue-Red-Br. IF Cathode
47	18KΩ	½	R1S-183	BTS-18K	Br.-Gray-Or. Diode Filter
48	3.3 Meg.	½	R1S-335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
49	3.3 Meg.	½	R1S-335	BTS-3.3 Meg.	Or.-Or.-Grn. " "
50	330KΩ	½	R1S-334	BTS-330K	Or.-Or.-Yl. Series Volume Control
51	1 Meg.	½	R1S-105	BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
52	68KΩ	½	R1S-683	BTS-68K	Blue-Gray-Or. Phono Shunt
53	180KΩ	½	R1S-184	BTS-180K	Br.-Gray-Yl. Diode Load
54	270KΩ	½	R1S-274	BTS-270K	Red-Vi.-Yl. AF Plate Load
55	470KΩ	½	R1S-474	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Grid
56	22KΩ	½	R1S-223	BTS-22K	Red-Red-Or. Phase Inverter Cathode
57	2700Ω	½	R1S-272	BTS-2700	Red-Vi.-Red Phase Inverter Cathode
58	22KΩ	½	R1S-223	BTS-22K	Red-Red-Or. Phase Inverter Plate Load
59	47KΩ	½	R1S-473	BTS-47K	Yl.-Vi.-Or. Output Grid
60	47KΩ	½	R1S-473	BTS-47K	Yl.-Vi.-Or. Output Grid
61	220Ω	2	R4G-221	BW-2-220	Red-Red-Br. Output Cathode
62	500Ω	10	PA-4231	AB-500	Filter

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	U. S. TELEVISION PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
63	.110A	140Ω	2.2 Henries	PA-7353	C-2303†		†Drill new mounting holes.
64	.110A	140Ω	2.2 Henries	PA-7353	C-2303†		

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	U.S. TELEVISION PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
65	117V AC @ .77A	710V CT @ .110A	6.1V AC @ 2.0A	3.4V AC @ 2.3A	PC-67000-60	P-6013	T22R05	P-2953

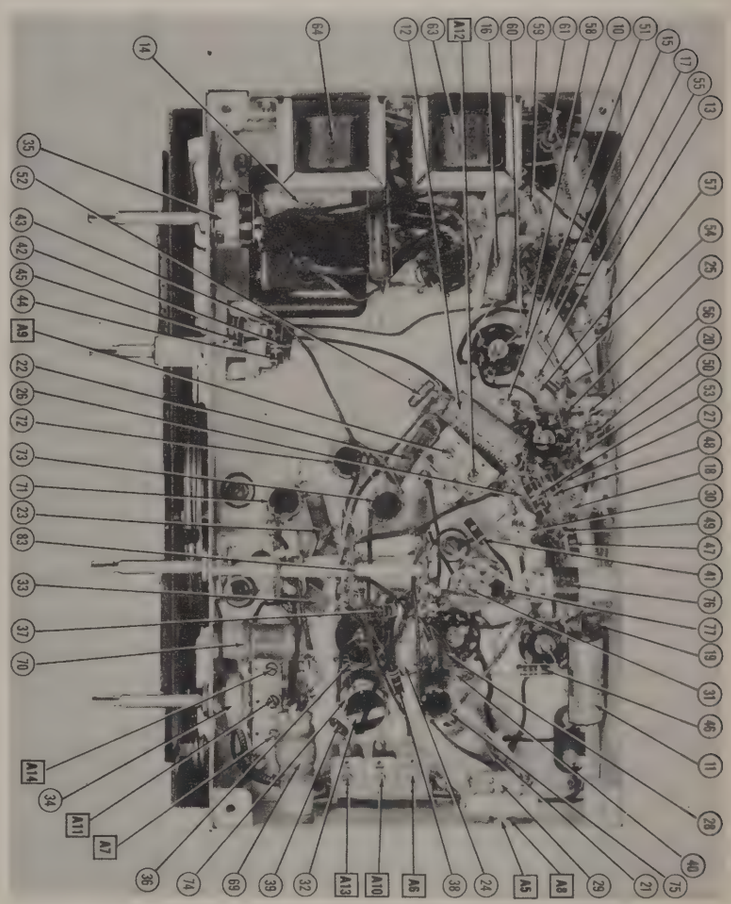
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		U. S. TELEVISION PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
66	12000 Ω CT	4.0Ω	420Ω CT	.25Ω	Part of PC-63000-8	A-2312	T22S56	A-2901*	*Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			U.S. TELEVISION PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-101*		*Replace output transformer to match 6Ω voice coil.
67	PM	4.0Ω	PC63000-8	Mod. P12-T		
	CONE DIA.	VC DIA.				
68	11"	1"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	U. S. TELEVISION PART No.	MEISSNER PART No.
69	BC Ant. Coil	19Ω	4.5Ω	AB-42230	14-1026
70	Osc. " "	4.5Ω	1.8Ω	AB-42233	14-1041
71	SW Ant. Coil	.5Ω	0Ω	AB-42236	14-1044
72	BC RF Coil	2.5Ω	4.5Ω	AB-42231	14-1027
73	Osc. RF Coil	3Ω	1.5Ω	AB-42234	14-1042
74	SW RF Coil	8Ω	0Ω	AB-42237	14-1045
75	BC Osc.Coil	1.5Ω	7.5Ω	AB-42232	14-1040
76	Osc. "	.5Ω	2Ω	AB-42235	14-1043
77	SW Osc.Coil	.3Ω	0Ω	AB-42238	14-1046
78	Input IF	12.5Ω	12Ω	AB-42216-1	16-6658
79	Output IF	6.5Ω	6.5Ω	AB-42216-2	16-6660

DIAL LIGHT

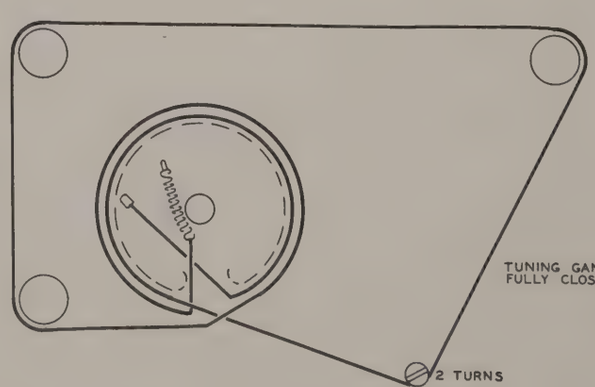
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					U.S. TELEVISION PART No.		
80	Bayonet	6-8	0.15	Brown			Type 47
81	"	"	"	"			" "

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	UST PART No.	ASTATIC PART No.	
82		L-70	

MISCELLANEOUS

ITEM No.	PART NAME	U.S. TELEVISION PART No.	NOTES
83	Bandswitch		
84	3 Gang Var. Cap.	PB-40400	13-460 MMF (each section)
A5	Dual Trimmer	PA-4370	BC Osc. Adj.
A8			BC Osc. Padder
A6	Trimmer Strip	PA-4374-2	BC RF Adj.
A10			SW #1 RF Adj.
A13			SW #2 RF Adj.
A7	Trimmer Strip	PA-4374-1	BC Ant. Adj.
A11			SW #1 Ant. Adj.
A14			SW #2 Ant. Adj.
A9	Dual Trimmer	PA-4375-1	SW #1 Osc. Adj.
A12			SW #2 Osc. Adj.



DIAL CORD DRIVE

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	270VDC	75VDC	4VDC	0V.	0V.	4VDC	6.4VAC
2	7Q7	0V.	270VDC	75VDC	-6.5VDC§	0V.	-1.2VDC	0V.	6.4VAC
3	7A7	0V.	270VDC	75VDC	3VDC	0V.	0V.	3VDC	6.4VAC
4	7B6	0V.	135VDC	0V.	1.1VDC	.5VDC	-1.2VDC	1.1VDC	6.4VAC
5	7A4	0V.	220VDC	0V.	0V.	0V.	35VDC	55VDC	6.4VAC
6	6V6GT	0V.	0V.	265VDC	270VDC	0V.	0V.	6.4VAC	16.5VDC
7	6V6GT	0V.	0V.	265VDC	270VDC	0V.	0V.	6.4VAC	16.5VDC
8	5Y3GT	0V.	345VDC	0V.	355VAC	0V.	355VAC	0V.	345VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

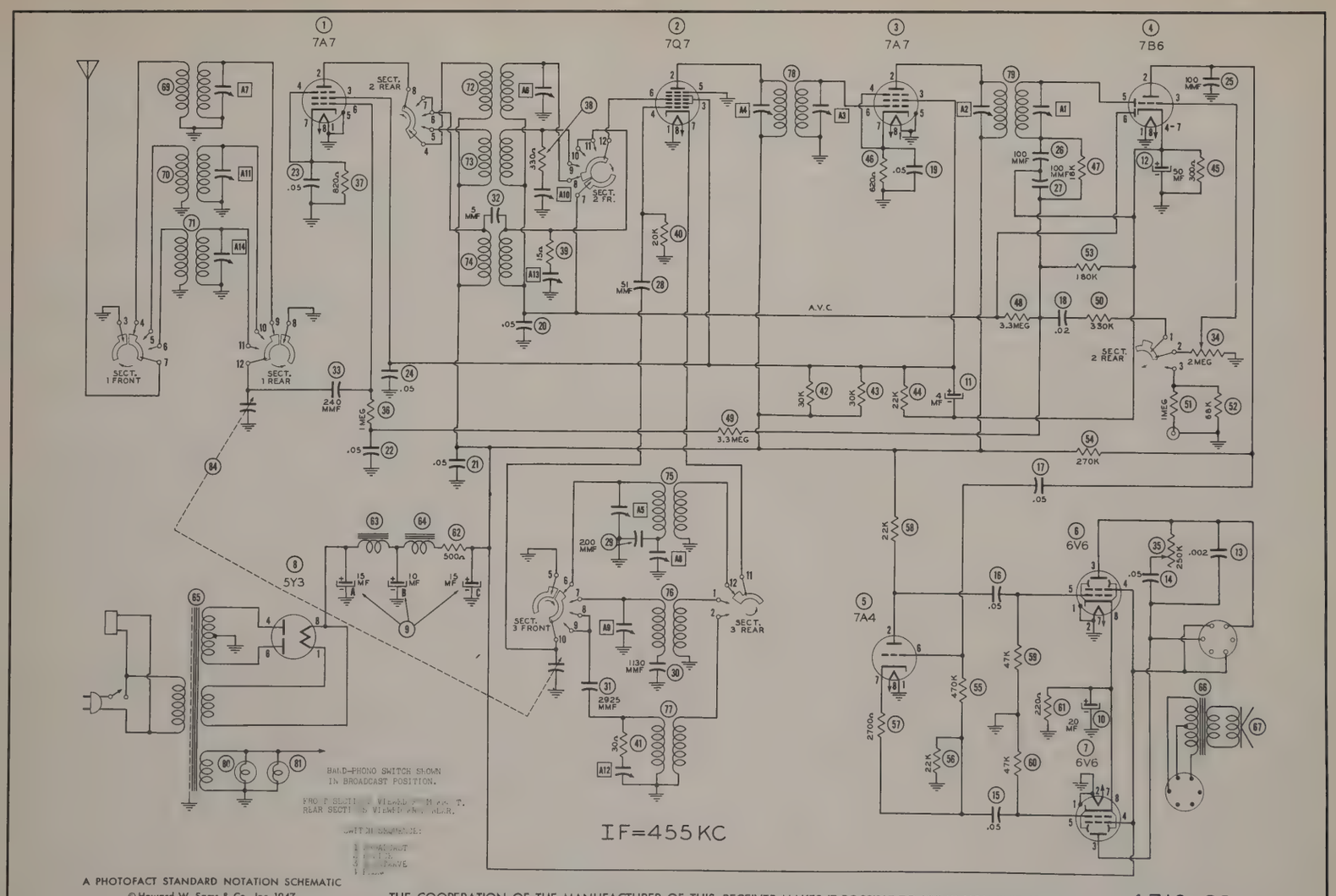
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0Ω	40KΩ	23KΩ	850Ω	0Ω	4.5 Meg.	850Ω	.1Ω
2	7Q7	0Ω	40KΩ	23KΩ	20KΩ	0Ω	3.5 Meg.	1.5Ω	.1Ω
3	7A7	0Ω	40KΩ	23KΩ	620Ω	0Ω	12Ω	620Ω	.1Ω
4	7B6	0Ω	300KΩ	2 Meg.	300Ω	200KΩ	3.5 Meg.	300Ω	.1Ω
5	7A4	0Ω	62KΩ	INF.	INF.	INF.	540KΩ	23KΩ	.1Ω
6	6V6GT	0Ω	0Ω	40KΩ	40KΩ	50KΩ	INF.	.1Ω	220Ω
7	6V6GT	0Ω	0Ω	40KΩ	40KΩ	50KΩ	INF.	.1Ω	220Ω
8	5Y3GT	INF.	40KΩ	INF.	165Ω	INF.	175Ω	INF.	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	6.5X	600KC
RF GRID TO CONV. GRID	1.5X	600KC
CONVERTER GAIN	105X	IN 600KC OUT 455KC
INPUT IF	.4X	455KC
IF TUBE	170X	455KC
OUTPUT IF	.7X	455KC
AUDIO	90X	400∿
PHASE INV.	.9X	400∿
OUTPUT	14X	400∿



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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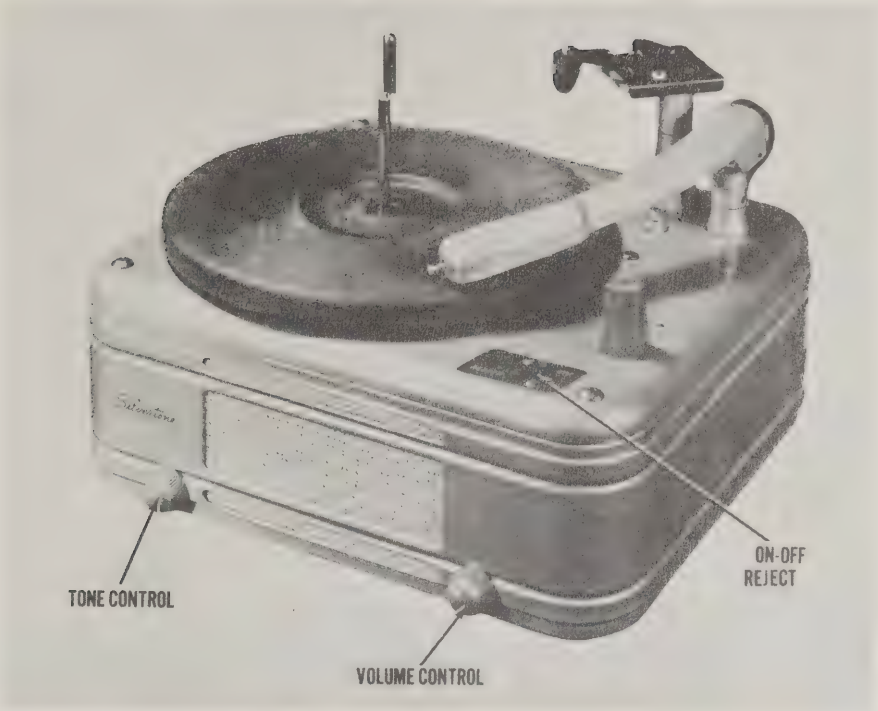
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4716-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

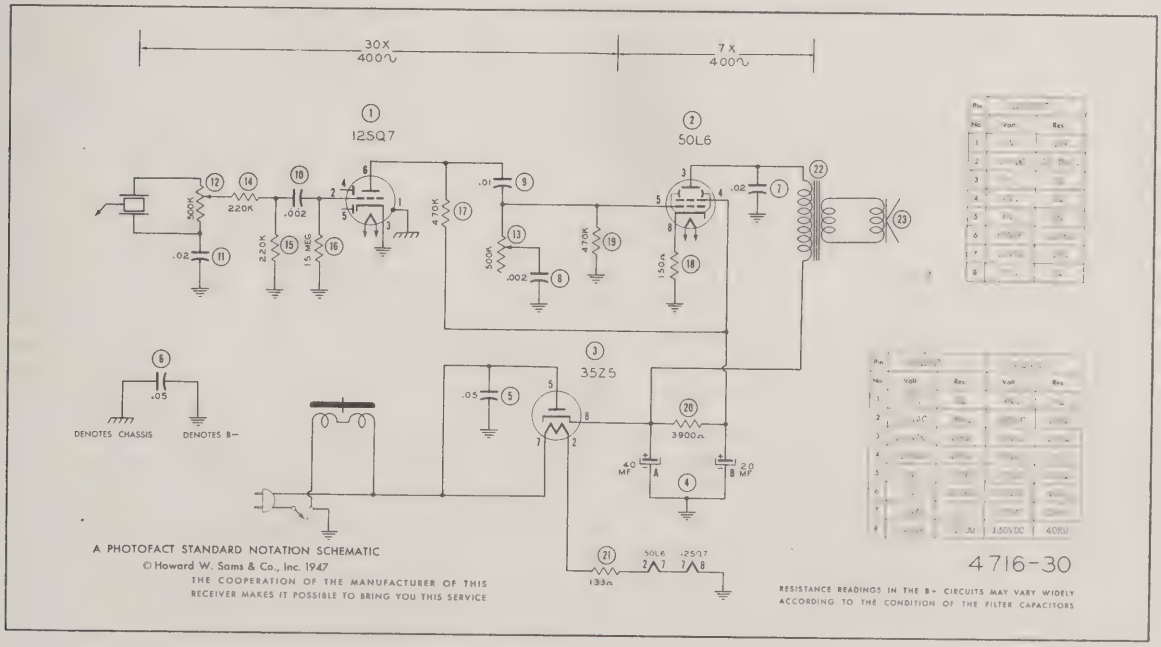
SILVERTONE MODEL
7153 (Ch.109.627)



SILVERTONE MODEL
7153 (Ch.109.627)

SILVERTONE MODEL 7153

TRADE NAME	Silvertone, Model 7153 (Ch. 109.627)
SUPPLIER	Sear, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Automatic Phonograph with 3 Tube Amplifier & Speaker
TUBES (THREE)	Types, 12SQ7GT AF Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .170 Amp. @ 117 Volts AC



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
				7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		150	D-A-6942	FP211	DY-4020-150	EL-24	AF66D	UP4215	■ Filter
		1 "							▲ "
			TP426	MPH-4-05	TC-15	484-05	DT4S5		Line Filter
			TP426	S-4-05	TC-15	484-05	DT4S5		Line Isolation
					TC-15	484-05	DT4S5		Output Plate Bypass
					TC-22	684-002	DT6D2		Tone Comp.
					TC-11		DT4S1		Audio Coupling
					TC-22	684-002	DT6D2		" "
					TC-15	484-05	DT4S2		Phone Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
			D-				Volume Control
			D-				Tone Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
			D-	BTS-220K	Red-Red-Yl. Tone Compensation
			D-	BTS-220K	Red-Red-Yl. Tone Compensation
			D-	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
			D-	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
			D-		Br.-Grn.-Br. Output Cathode
			D-		Yl.-Vi.-Yl. Output Grid
	50002		D-BR16C392	BTS-3900	Or.-White-Red Filter
21	133Ω	5	D-A-9528	ABA-150	Line Dropping-See Note

Note-On IRC replacement set slider at 133Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
				.7Ω	-P-1675-S	A-2976	T32845	A-2923	

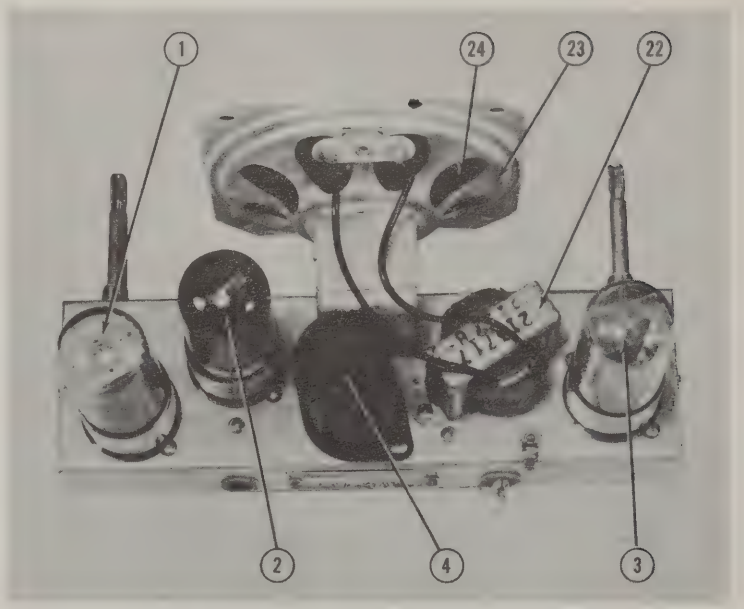
SPEAKER

ITEM No.	RATINGS: FIELD	RATINGS: VC IMP.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
	1.5	2.5Ω	C-	ST-113* Mod. P4-X		*Drill and tap magnet frame.
	C.T. TAP	VC DIA.				
	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

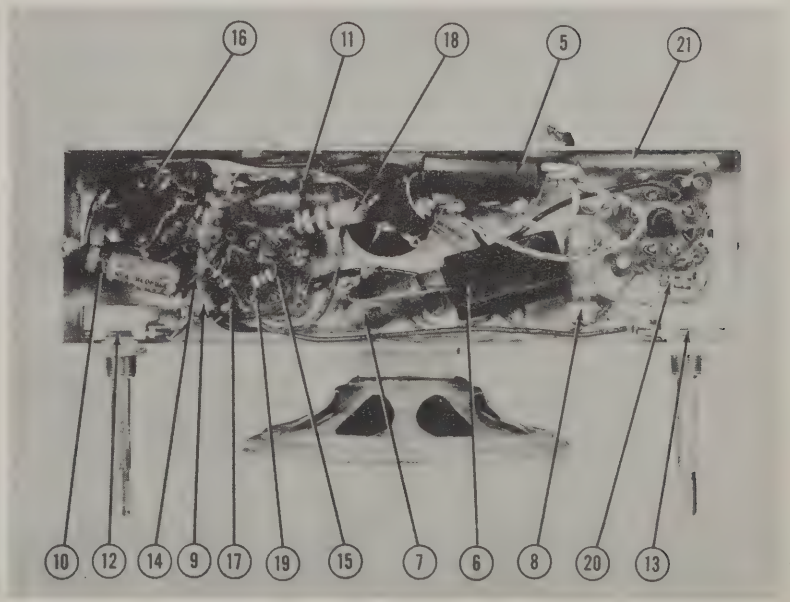
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
		L-	

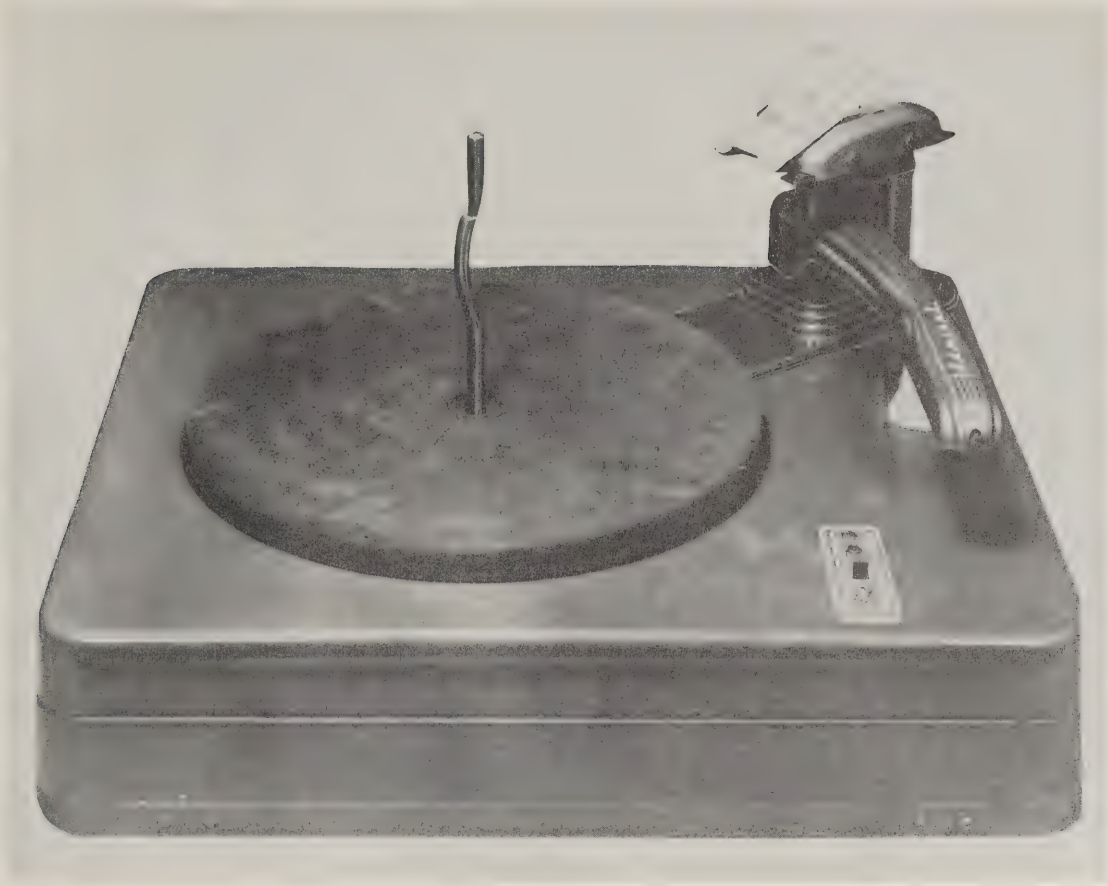
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



ADMIRAL
MODEL RC150



FRONT VIEW

ADMIRAL
MODEL RC150

GENERAL INFORMATION

This changer is designed to play automatically up to twelve 10-inch or ten 12-inch records at one loading. The last record is repeated until the changer is turned off. Manual playing of records is accomplished by use of the "on-off" switch between records.

There are several models which look similar. The Model RC150 may be identified by removing the record support cover assembly and noting the adjusting screws (7A).

Manufactured by ADMIRAL CORPORATION, 3800 Cortland Street, Chicago, Illinois

The Model RC150 Was Used Only in the Following Models:

5RP47 with serial numbers under 406,000

6RC46 with serial numbers under 300,000

6RT42-5B1 with serial numbers under 350,000

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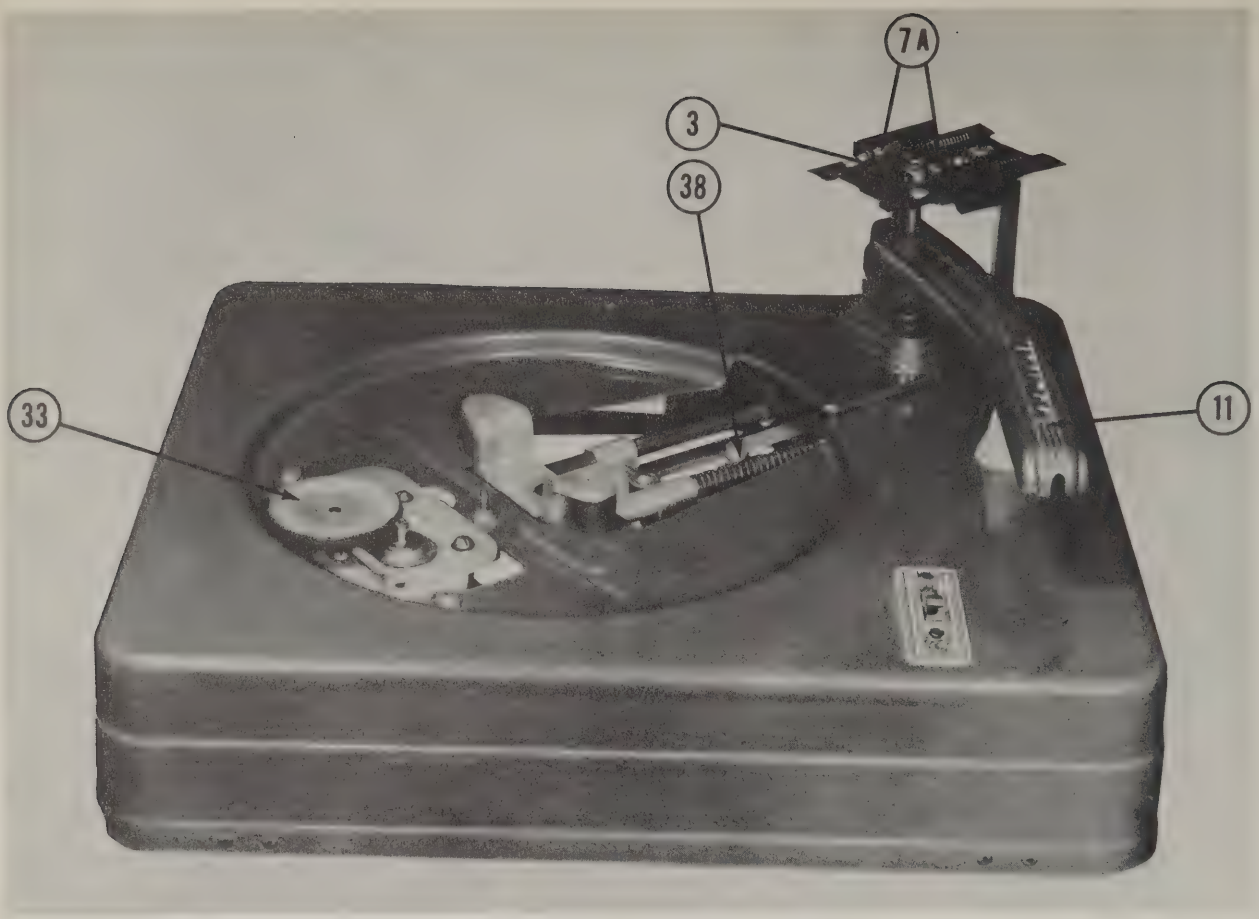


TOP VIEW PARTIALLY DISASSEMBLED

THE CHANGE CYCLE

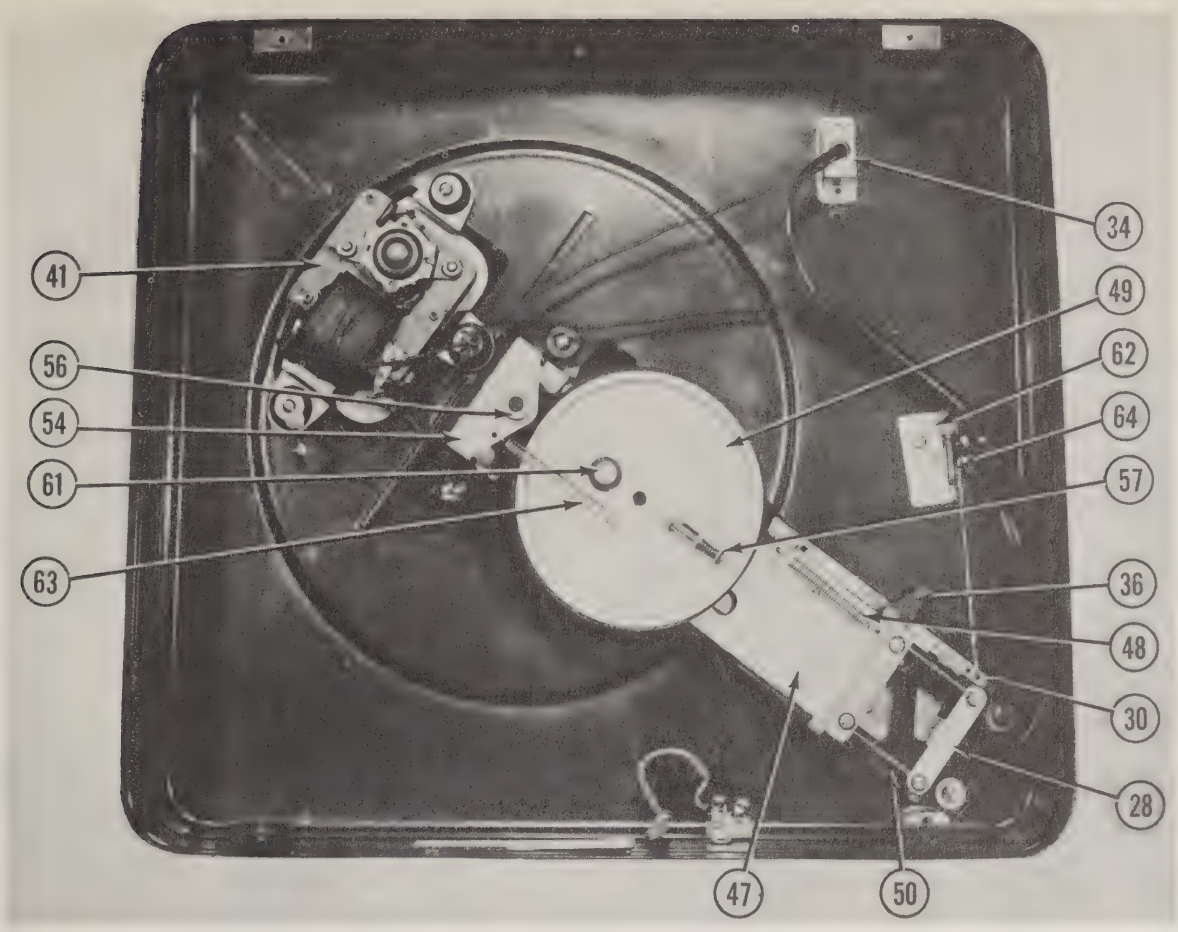
The pickup arm (11) is connected to the retaining roller (38) through the trip linkage assembly (35, 36). As the pickup arm moves toward the center of the record, it gradually withdraws the retaining roller from its position where it holds the eccentric cam (49) in the between-cycle position.

The withdrawal of the retaining roller allows the eccentric cam to contact the knurled roller (52), which is turned by the turntable (21) through the turntable shaft (21A). This moves the riser plate assembly (47) away from the centerpost along the guide rods (50), pushing the lower lift rod (12A) up as its inclined surface passes under the rod. The lower lift rod raises the pickup arm from the record by means of the pickup arm lift adjustment screw (15).

The motion bracket (47A) pushes the stop arm (36) away from the centerpost and thus moves the pickup arm clear of the edge of the records. It also rotates the guide pin assembly (18) which rotates the push-off cam (3) by means of the upper lift rod and guide plate assembly (12). The push-off cam, which has also been raised by the lift rods, is then in line with the set-down point adjustment screw (7A). As the push-off cam rotates, it pushes against the adjustment screw and moves the push plate (part of 7) toward the centerpost, thus dropping the bottom record of the stack to the turntable. The push plate springs return the push plate to its normal position and in doing so rotate the push-off cam, moving the pickup arm to its set-down point and returning the trip linkage assembly (35) to its normal position.

The eccentric cam has now completed one-half revolution and starts to allow the riser plate assembly (47) to reverse its direction of travel along the guide rods toward the centerpost. As the riser plate, propelled by the recoil spring (39), moves toward the centerpost, it allows the lift rod (12A) to lower to its normal position and, in doing so, lowers the pickup arm to the record. The eccentric cam completes its revolution and moves away from the knurled roller (52), since its support (46) is prevented from further travel by the guide rod ferrule. The cam is prevented from further rotation since its stop bracket comes to rest against retaining lever roller (38). The cycle is now complete.

To play the first record of a stack, or to reject a record, the reject button (25) must be pressed. This moves the reject lever assembly (62) and pulls the coupling wire, tripping the reject trigger (30). This allows the reject spring (27) to pull the reject slide (28A) forward, carrying with it the stop arm (36) of the trip linkage assembly. The retaining lever then pulls the retaining lever roller (38) away from the eccentric cam stop (49B) allowing the eccentric cam (49) to contact the knurled roller (52) and start a cycle exactly as upon the completion of a record. As this cycle takes place, the riser plate motion bracket (47A) returns the reject slide (28A) to its normal position held in place by the reject trigger (30).



BOTTOM VIEW

ADJUSTMENTS

Pickup Arm Set-Down Point

Separate screws (7A) are provided for adjustment of the 10-inch and 12-inch pickup arm set-down points. The adjustment nearest the centerpost is the adjustment screw for that position of the record shelf.

Adjustment is made by loosening the locknut and turning counterclockwise to move the set-down point toward the centerpost, or clockwise to move the point away from centerpost.

Pickup Arm Lift

The knurled, spring-loaded screw (15) is provided for pickup arm lift adjustment. Turning the screw clockwise lowers the lift and turning it counterclockwise raises the lift. Correct adjustment allows the pickup arm to clear bottom of the unplayed record stack without the pickup needle striking the top record of a full stack on the turntable.

Trip Point

The tripping point, or beginning of a change cycle on the completion of a record, is adjusted by the tripping point adjustment screw (57). Turning the screw clockwise delays the tripping while turning it counterclockwise advances the tripping.

Correct adjustment allows tripping when the pickup needle is 1⅝" from the side of the centerpost.

Record Separation

The function of the record separation latch (16A) is to prevent more than one record from dropping to the turntable at one time. If it does not function properly, the centerpost is probably bent. Correct adjustment allows 1/32 to 1/16 inch clearance between the edge of a record and the end of the record slide push plate.

In bending the centerpost for adjustment, care should be taken to prevent breakage at the shoulder. All pressure should be applied below the shoulder.

Push-Off Cam

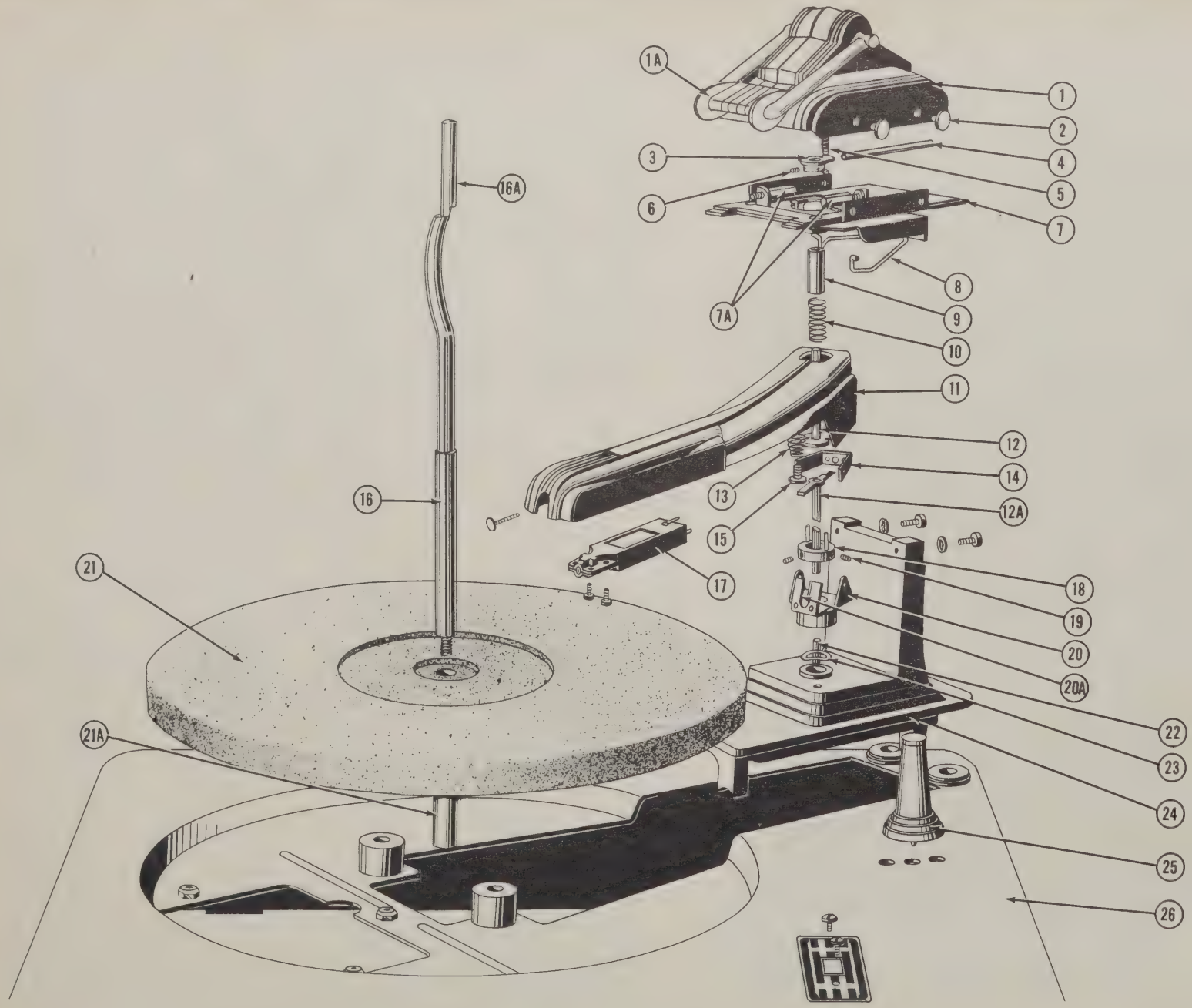
This should be necessary only if the cam has been removed or loosened:

1. Loosen both set screws (6) using No. 6 Bristol wrench.
2. Set the record support for 12-inch records.
3. Place a 12-inch record in playing position on the turntable.
4. Move the pickup arm toward the centerpost to actuate the trip.
5. Turn the turntable, by hand, in its normal direction until the arm lifts and moves outward to a point where the needle is directly over the point on the edge of the record at which it would set down at the beginning of the next playing. Be sure that the pickup arm has been stopped when it is moving *AWAY* from the centerpost.
6. Set the point of the cam (3) in light contact with and slightly below the center of the 12-inch set-down adjustment screw (7A).
7. Tighten both set screws.
8. Check set-down points for both 10- and 12-inch records and readjust, if necessary.

Guide Pin Assembly

This should be necessary only if the assembly has been removed or loosened:

1. If head assembly and pickup arm have not been removed, it will now be necessary to do so. The pickup arm is removed by prying the pivot spring (14) away from the pins on the lift guide assembly (20).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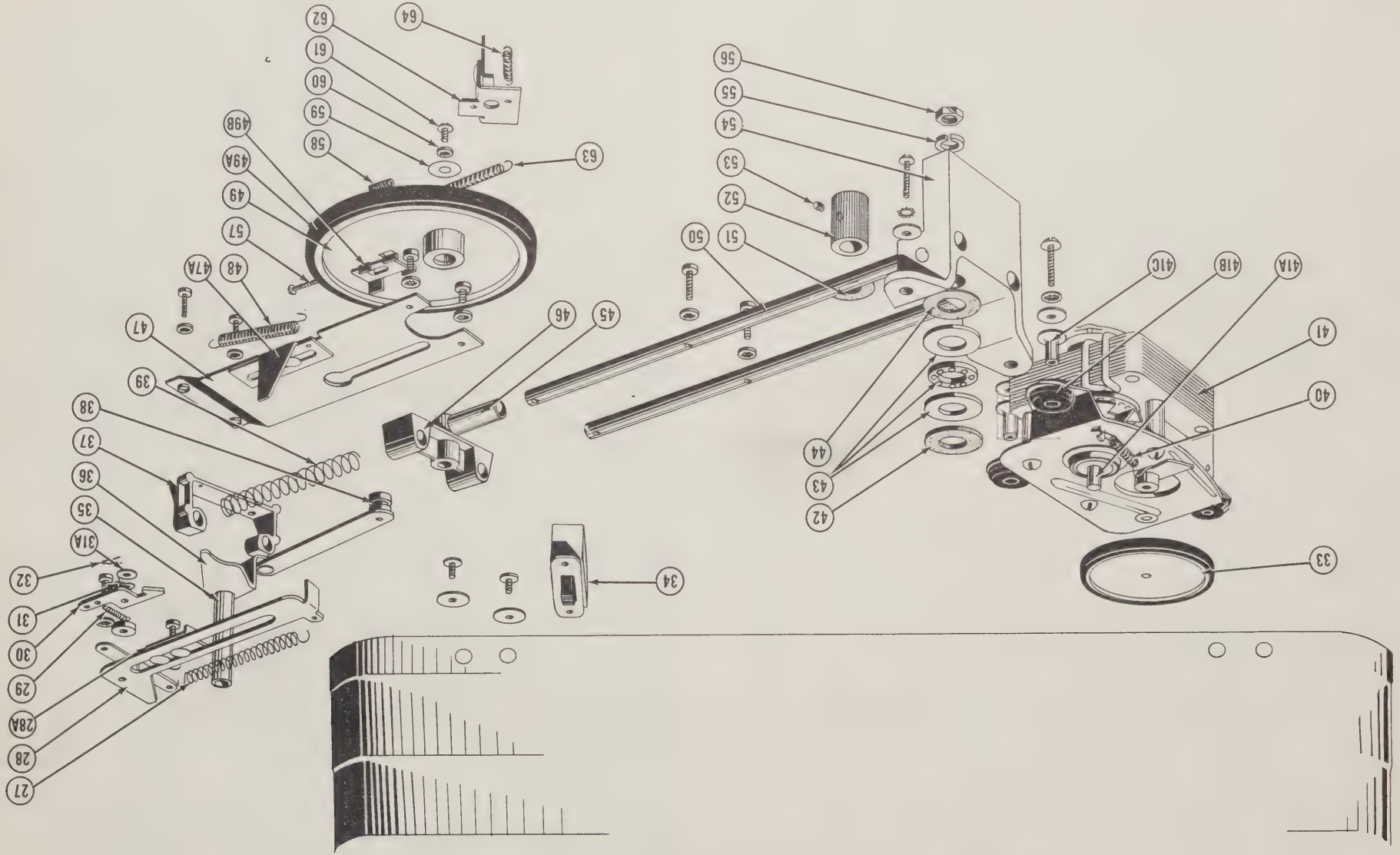
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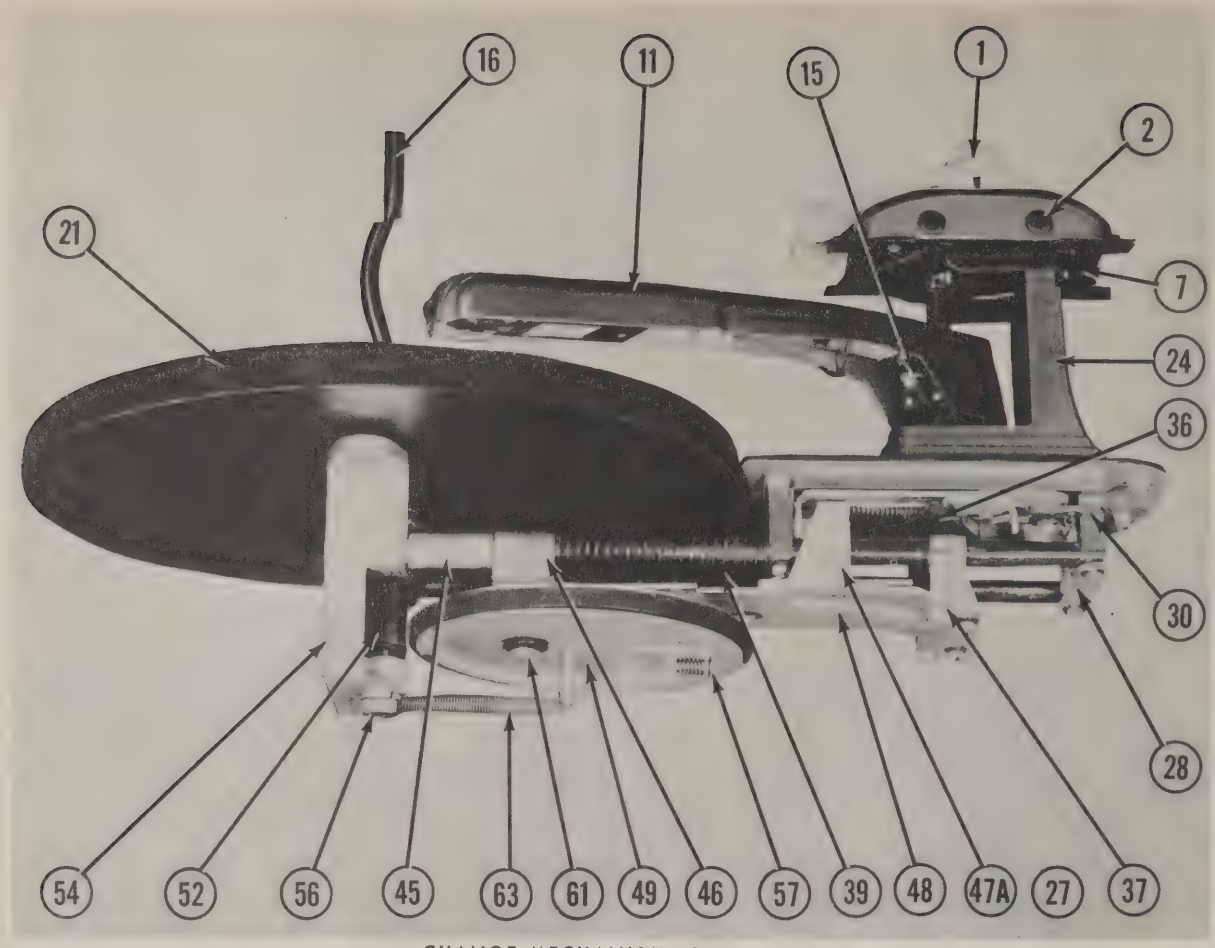


CHANGE MECHANISM—FRONT VIEW

2. Press reject button.

3. Turn turntable, by hand, in its normal direction until the riser plate assembly (47) has reached its maximum travel.

4. Continue to turn the turntable for about ½ additional revolution to allow the riser plate to return about 1/32" or less. Hold the turntable to prevent further movement.

5. Push the stop arm (36) against the motion bracket (47A) on the riser plate and upward toward the base.

6. Turn the lift guide assembly (20) counterclockwise until it is against the stop pin (22).

7. Rotate the guide pin assembly (18) counterclockwise, as far as possible, until it strikes against the lower lift rod assembly (12A).

8. Hold these positions, including that of the stop arm (36), as described above.

9. Press down on the guide pin assembly (18) in order to hold the lift guide assembly (20) tightly against the base (24).

10. Tighten the set screws (19).

To Remove Turntable

Before the turntable can be removed, it is first necessary to remove the centerpost. This is done by removing the centerpost nut (56) and lock washer (55). The knurled roller (52) is then loosened from the turntable shaft (21A) by loosening the set screw (53). This allows the turntable to be removed by pulling upward with a rotary motion.

Lubrication

Use SAE No. 10 motor oil on the following points:

A—Motor bearings.

B—Turntable bearing, if type having sleeve-bearing insert.

Use Sta-Put No. 512 on the following points:

A—Turntable bearing, if type without sleeve-bearing insert.

B—All points of frictional contact.

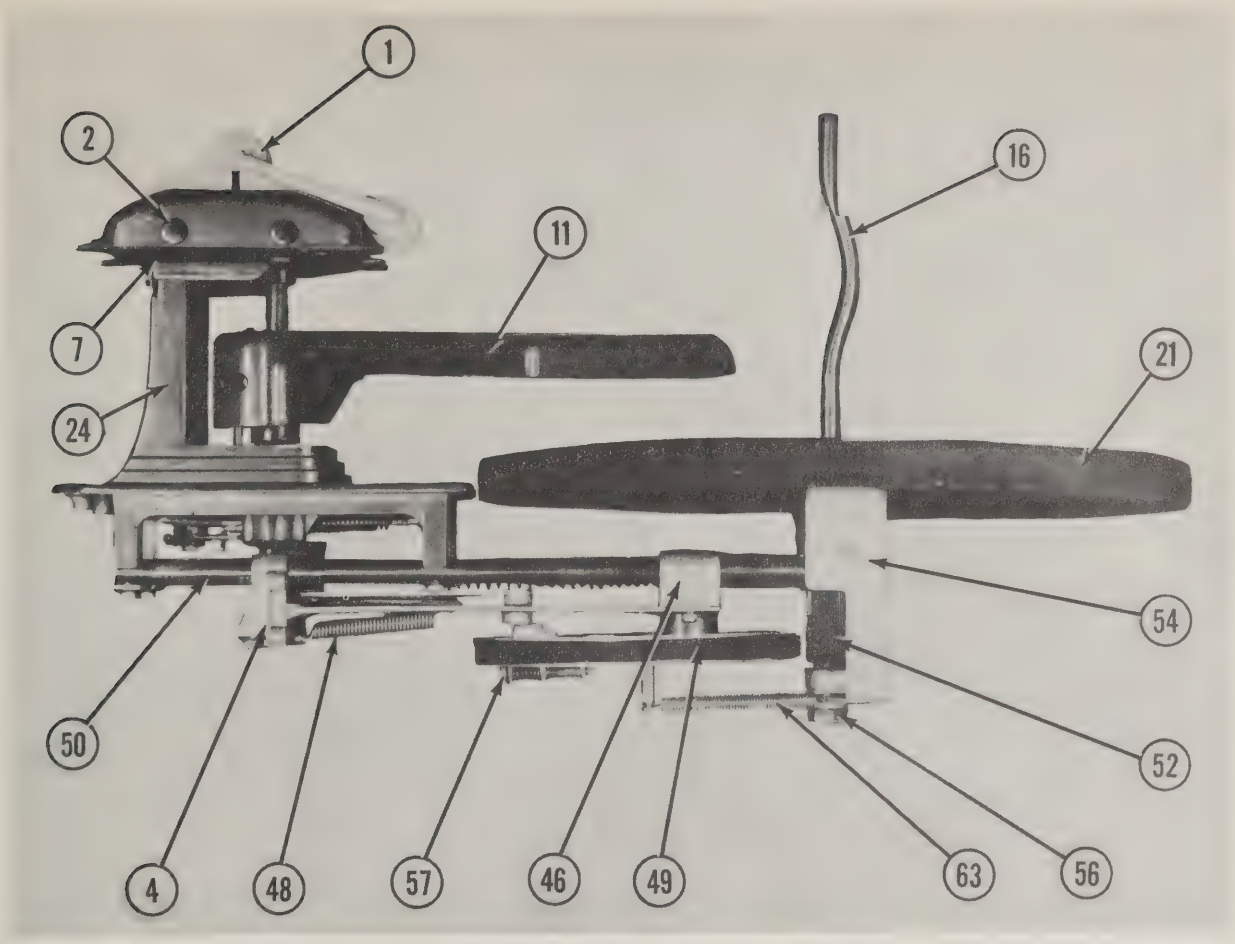
Do not lubricate tone-arm bearing or lift rods (12, 12A). Be careful that no lubricant reaches the idler wheel tire or the eccentric cam tire.

Motor Replacement

Three different types of motors have been used in this changer. It will be noted from the parts list that each type requires its own associated mountings, idler wheel, etc. This is further clarified in the following table:

Motor (41)	*Idler Wheel (33)*	*Idler Wheel (40) Spring*	*Rubber Grommet (41B)*	*Grommet Spacer (41C)*	*Drive Pulley (41A)*
407B3	G400A23	405A14	406A4	401A53	401A48
407B1	G400A57	405A35	406A9	402A44	None
407B2	G400A59	405A36	406A10	402A45	None

Identification of the different motors is made by the part number which is stamped on the motor frame.



CHANGE MECHANISM—REAR VIEW

TROUBLES

1. Turntable does not turn:
   (a) Check idler wheel position.
   (b) Check motor.
   (c) Check for burrs on turntable shaft.
   (d) Check idler wheel mounting plate and spring.
   (e) Check for bent motor mounting plate.

2. Both 10- and 12-inch pickup arm set-down points erratic:
   (a) Check for weak push plate springs (part of 7) indicated by play in head assembly between cycles.
   (b) Check for loose push-off cam (3). If necessary, tighten as described under "Adjustments."
   (c) Check for loose guide pin assembly (18). If necessary, tighten as described under "Adjustments."

3. Changer starts to cycle when record support is turned for record size change:
   (a) Check for interference between the push-off cam (3) and the set-down adjustment screw. They should not touch except during a cycle. It may be necessary to bend the screw upward and readjust for set-down position.

4. Changer continues to cycle without playing records:
   (a) Check adjustment of the trip point screw. This adjustment may be advanced so far as to make the eccentric cam stop bracket (49B) ineffective. See instructions under "Adjustments."

5. Changer will not cycle:
   (a) Check the eccentric cam (49) to see if it contacts the knurled roller (52) when the retaining roller releases the cam. Failure to do so may be caused by broken or stretched cam spring (63) or by tightening at cam pivot.
   (b) Check to see if set screw (53) in knurled roller (52) has become loose allowing roller to slip on turntable shaft (21A).
   (c) Check adjustment of trip point adjustment screw (57). This adjustment may be screwed in so far that a standard record will not trip the mechanism. See instructions under "Adjustments."

6. Bottom record of unplayed stack fails to drop to turntable:
   (a) Check record clip (1A) for position and spring tension.
   (b) Check record for warped condition.
   (c) Check centerpost for bent condition.
   (d) Check for loose push-off cam (3).

7. Pickup arm setdown point differs for cycle started by end of record from cycle started by reject button (25):
   (a) Check latch spring (20A). The left leg of this spring should engage the lip of the guide plate (part of 12).
   (b) Check push-off cam (3) for looseness or improper setting. See instructions under "Adjustments."
   (c) Check guide pin assembly (18) for looseness or improper setting. See instructions under "Adjustments."

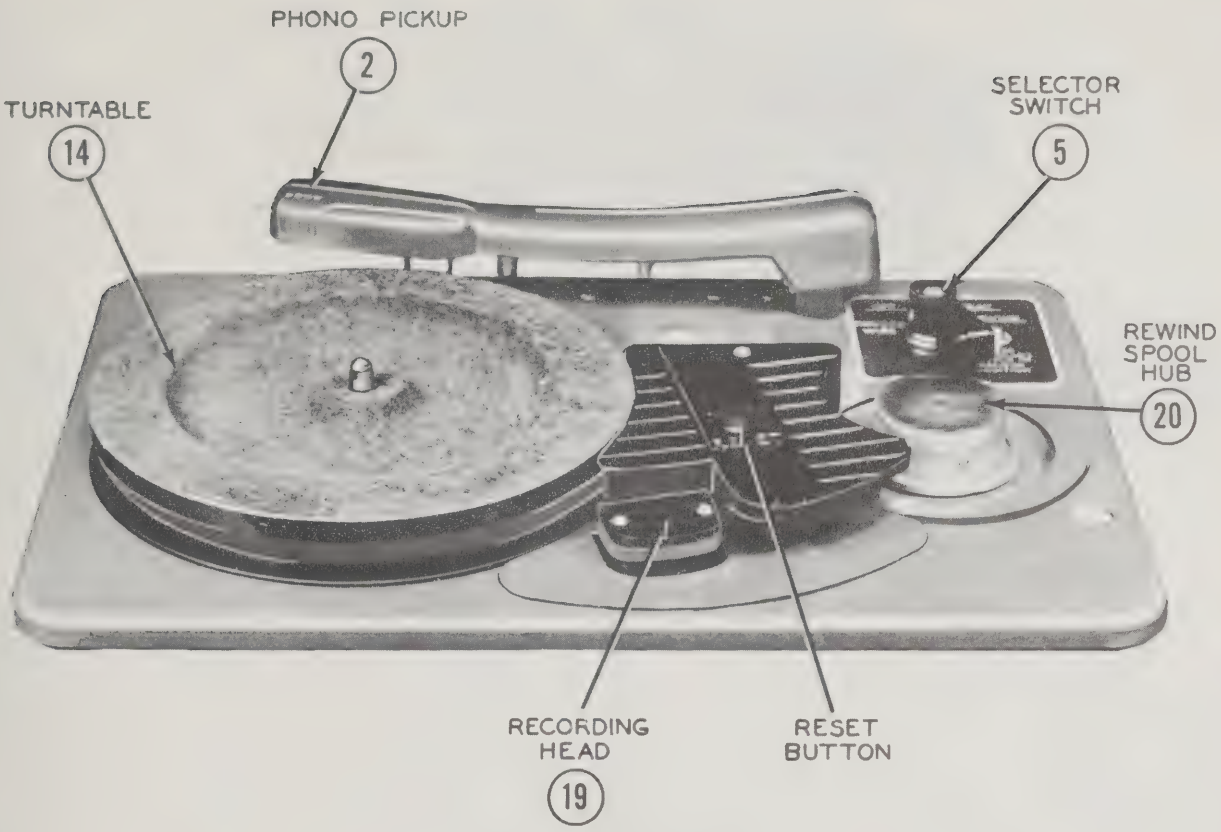
8. Pickup arm remains at rest position after cycle has begun:
   (a) Check for loose screws in push-off cam (3). See instructions under "Adjustments."
   (b) Check guide plate (part of 12). This plate is brazed to the upper lift pin (12) and may come loose if brazing is defective.

9. Twelve-inch adjustment point differs with cover assembly off and on:
   (a) Check 12-inch set-down point adjustment screw (7A) for interference with cover. It may be necessary to file end of screw to gain clearance.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	G400AB-B	Cover assembly (includes 1A, 4 and 4A)
1A		Record clip (part of 1)
2	13A1-4-57	Snap button for cover
3	G400A31	Push-off cam
4	414A4	Spring rod (record clip)
5	405A4	Spring, record clip
6	1A44-38	Cam set screw (Bristol hd., No. 6-32 x 3/16")
7	G400B51	Head assembly (includes 8)
8	405B18	Spring, head mounting plate
9	402A40	Spacer, upper lift rod
10	405A20	Spring, upper lift rod
11	G400A62	Pickup arm
12	G400A35	Upper lift rod and guide plate
12A	G400A34	Lower lift rod assembly
13	405A29	Lock spring, pickup arm lift adjustment
14	405A2	Pivot spring
15	402A17	Pickup arm lift adjustment screw
16	G400A12	Centerpost
16A		Record separation latch (part of 16)
17	409A3 409A2 409A1	Pickup cartridge
18	G400A32	Guide pin assembly
19	1A44-38	Guide pin assembly set screw (Bristol hd. No. 6-32 x 3/16")
20	G400A10	Lift guide and latch spring assembly
20A		Latch spring (part of 20)
21	G400B49	Turntable and shaft assembly
21A		Turntable shaft (part of 21)
22		Stop pin (part of 24)
23		Guide assembly washer
24	G400A64	Pickup arm base
25	G400A46-1	Reject housing assembly (for metal base)
	G400A46-2	Reject housing assembly (for wood or plastic base)
26		Base (metal illustrated)
27	405A23	Spring, reject slide
28	G400A54	Reject bracket and slide assembly
29	405A24	Spring, reject trigger
30	401A70	Reject trigger
31	405A22	Spring washer, reject trigger
31A	4B7 68-47	Flat washer, reject trigger
32	405A15	Hairpin spring, reject trigger
33	G400A23	Idler wheel assembly for motor 407B3 only
	G400A57	Idler wheel assembly for motor 407B1 only
	G400A59	Idler wheel assembly for motor 407B2 only
34	77A1-15	Switch, on-off
35	G400A4	Trip linkage assembly. (Some early models were furnished with a flat washer; omit washer only if new part installed.)

Ref. No.	Part No.	DESCRIPTION
36		Stop arm (part of 35)
37	404A-1	Riser plate support
38		Roller, retaining lever (part of 35)
39	405A9	Spring, recoil
40	405A14	Spring, idler wheel for motor 407B3 only
	405A35	Spring, idler wheel for motor 407B1 only
	405A36	Spring, idler wheel for motor 407B2 only
41	407B3	Motor, 105-125 volts, 60 cycle (motors 407B1 and 407B2 are interchangeable with 407B3)
41A	401A48	Drive pulley (part of 41) for motor 407B3 only
41B	406A4	Rubber grommet (motor mounting) for motor 407B3
	406A9	Rubber grommet (motor mounting) for motor 407B1
	406A10	Rubber grommet (motor mounting) for motor 407B2
41C	401A53	Spacer, grommet, for motor 407B3
	402A44	Spacer, grommet, for motor 407B1
	402A45	Spacer, grommet, for motor 407B2
42	412A1	Cork washer, 3/32" thick
43	415A2	Thrust bearing; replace as unit
44	412A9	Cork washer 3/64" thick
45	401A27	Ferrule, guide rod stop
46	404A3	Support, eccentric cam
47	G400A9	Riser plate assembly
47A		Riser plate motion bracket (part of 47)
48	405A7	Spring, safety
49	G400A45	Eccentric cam (with tire)
49A	406A1	Rubber tire, eccentric cam (part of 49)
49B	401A58	Stop bracket
50		Guide rods
51	412A1	Cork washer (3/32" thick)
52	402A5	Knurled roller, turntable shaft (two lengths used—29/32" and 31/32". Omit cork washer, item 51, when using 31/32")
53	1A44-13	Set screw for 52 (Bristol No. 8-32 x ⅛")
54	G400B56	Turntable mounting and guide assembly
55		Lockwasher, centerpost
56	402A41	Hex nut, centerpost (¼"-20)
57	60-1125-C2-21	Trip point adjustment screw (R.H.M.S. No. 6-32 x 1⅛")
58	405A10	Spring, stop bracket
59	4B1-57-47	Flat washer, eccentric cam
60		Lock washer, eccentric cam
61	84-250-C2-21	Screw, eccentric cam (R.H.M.S. No. 8-32 x ¼")
62	G400A61	Reject lever assembly
63	405A8	Spring, eccentric cam
64	405A25	Spring, reject lever
65		Reject trigger coupling wire



TOP VIEW

GENERAL INFORMATION

The Model 771 wire recorder is designed to record sound magnetically on a moving wire. The standard spool contains approximately 7,500 feet of wire, which is sufficient for over an hour of continuous recording at the standard wire speed of two feet per second. The recordings may be played back immediately after the wire has been rewound. A recording will last indefinitely, since the playback process has no effect on the wire; or new recordings may be made on an old spool, since in the recording process any previous recording is erased. The take up spool for wire recording is made in the form of a turntable and a standard crystal phonograph pickup is included so the same unit serves both as a wire recorder and a standard record player.

Manufactured by: SEARS ROEBUCK & CO., 925 S. Homan St., Chicago, Ill.

Parts should be ordered from the nearest Sears retail store or mail order branch.

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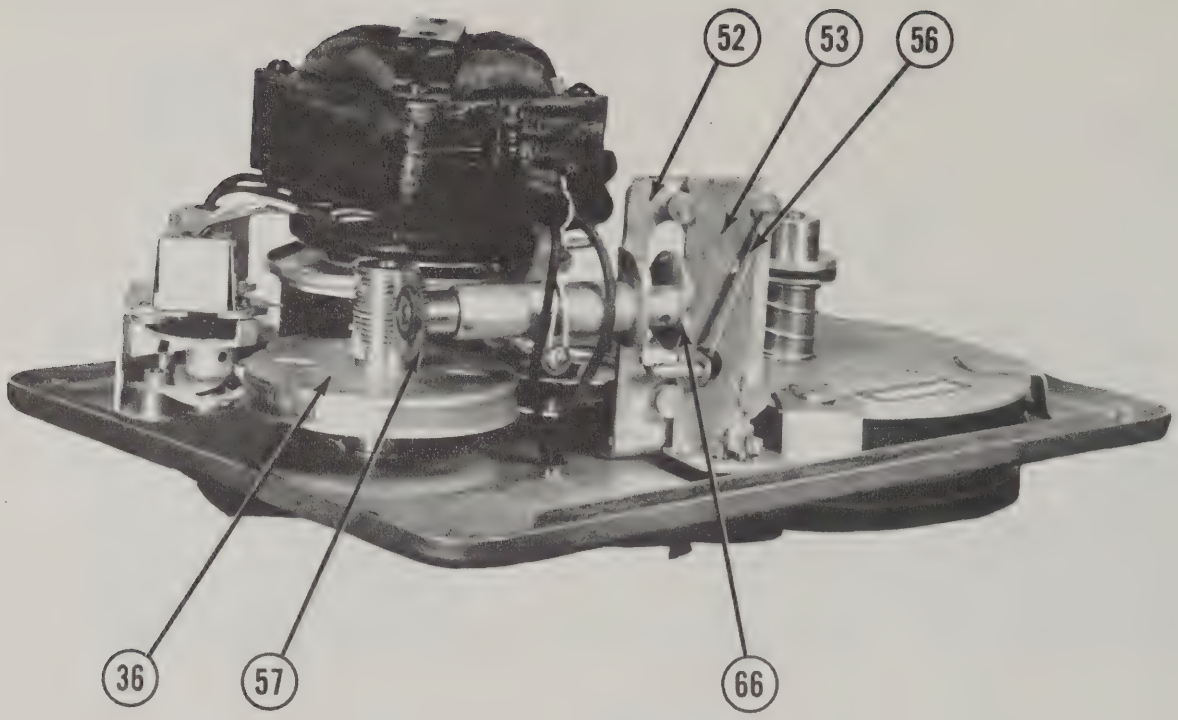
SILVERTONE
MODEL 771

SILVERTONE
MODEL 771



RIGHT FRONT VIEW

OPERATION

Proper placing of the wire on the machine is very important, as "wows" may result from improper procedure.

1. Press the "Reset" button.

2. Before placing the wire on the mechanism, the recording head should be brought to its top position. This may be done by turning the selector switch knob to "Rewind."

3. Place the spool, label side up, over the spool hub (20) and press on the spool until it is firmly seated. The slot on the spool should not be lined up with the ball on the side of the spool hub.

4. Loosen the end of the tape leader from the spool and carefully pull it past the recorder head (19). Place the leader in the channel in the rim of the turntable. While holding the leader against the inner edge of the channel, rotate the turntable until two complete turns of wire are in the channel. The full length of the leader must be pressed against the inner surface of the channel or speed variations will result.

If the turntable does not rotate when the control is turned to "play" or "record" the "Reset" button should be checked.

When changing the position of the selector switch, the lever should be snapped quickly from one position to the other. It is not necessary or advisable to touch the wire at any time.

MECHANICAL ALIGNMENT

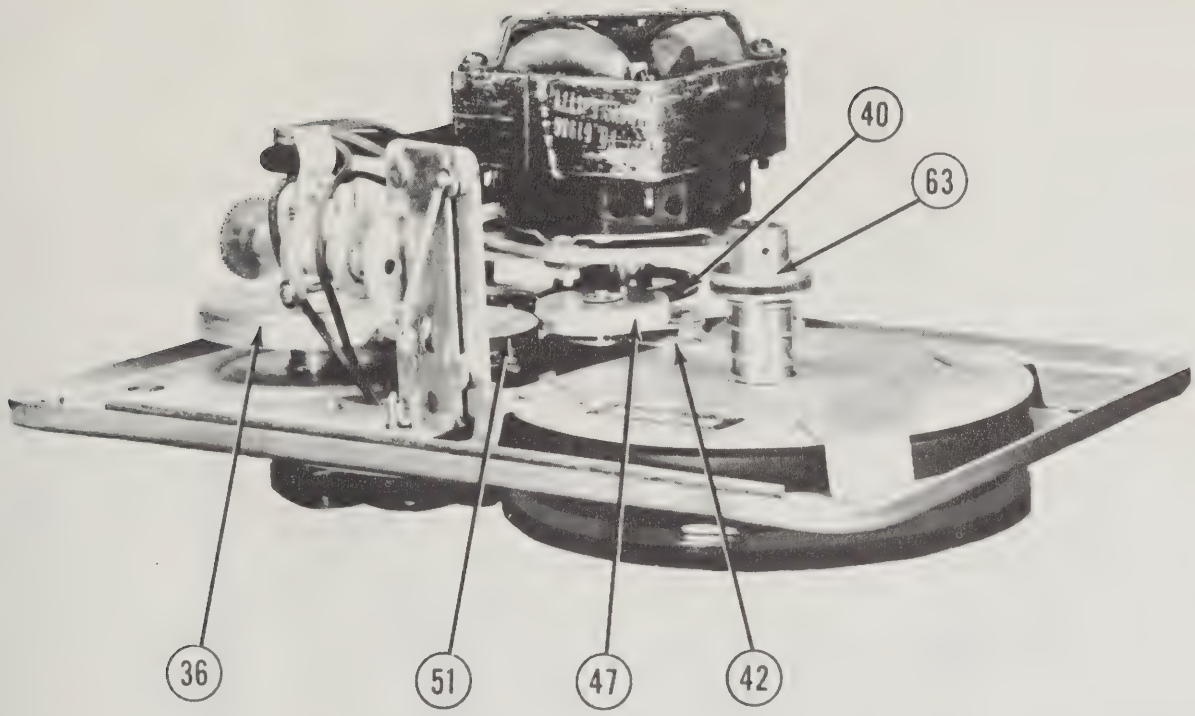
The following mechanical alignment should be performed in the order given as the accuracy of some adjustments is dependent on preceding adjustments.

Rewind Spindle Assembly

1. Remove the knurled thumb screw (20A).
2. Lift off the rewind spool (20B).
3. Loosen the set screws (46) in the pulley assembly (36).
4. Place a .010" feeler gauge between the thrust washer near the top of the rewind shaft (20C), and the end of the bearing on the motor board.
5. Holding the top end of the rewind shaft against the feeler gauge, push the rewind pulley assembly (36) until all end play is removed.
6. After the set screws have been retightened, the feeler gauge may be removed and the rewind spool and knurled screw replaced.

Turntable Assembly

1. Loosen the set screws in the spring support (63).
2. Push the felt washer (35), keyed washer (34), and spring (33) away from the spring support.
3. Place a .010" feeler gauge between the spring support and the end of the bearing.



LEFT FRONT VIEW

4. Push the spring support and the turntable together until all end play is removed.

5. After retightening the set screws the feeler gauge may be removed and the spring and washers allowed to return to their normal positions.

Rewind Pulley Train

Check the metal pulley (47) for end play. Excessive end play may be removed by shimming with extra washers (50). To remove the pulley, proceed as follows:

1. Place the selector switch knob in "play" position.

2. Remove the spring clip and pulley (51) from the link assembly (48).

3. The metal pulley may now be swung out and removed.

Check the link assembly (48) for end play on the shaft on the motor board. If end play is excessive, proceed as follows:

1. Remove the spring clip (49).

2. Remove the link assembly (48) from the shaft.

3. Shim with washers (50) until end play is removed when the spring clip is replaced.

Check the idler pulley (51) for end play on the shaft of the link assembly (48). Excessive play may be removed by shimming with washers (50).

Place the selector switch lever in "play" position. Check the clearance between pulleys (47) and (51) with a 5/64" gauge. The clearance may be adjusted by loosening the screws (44) in the stop (42) and adjusting the stop.

Noise in the rewind pulley assembly may be cured by greasing with Marfak "O."

Motor Adjustment

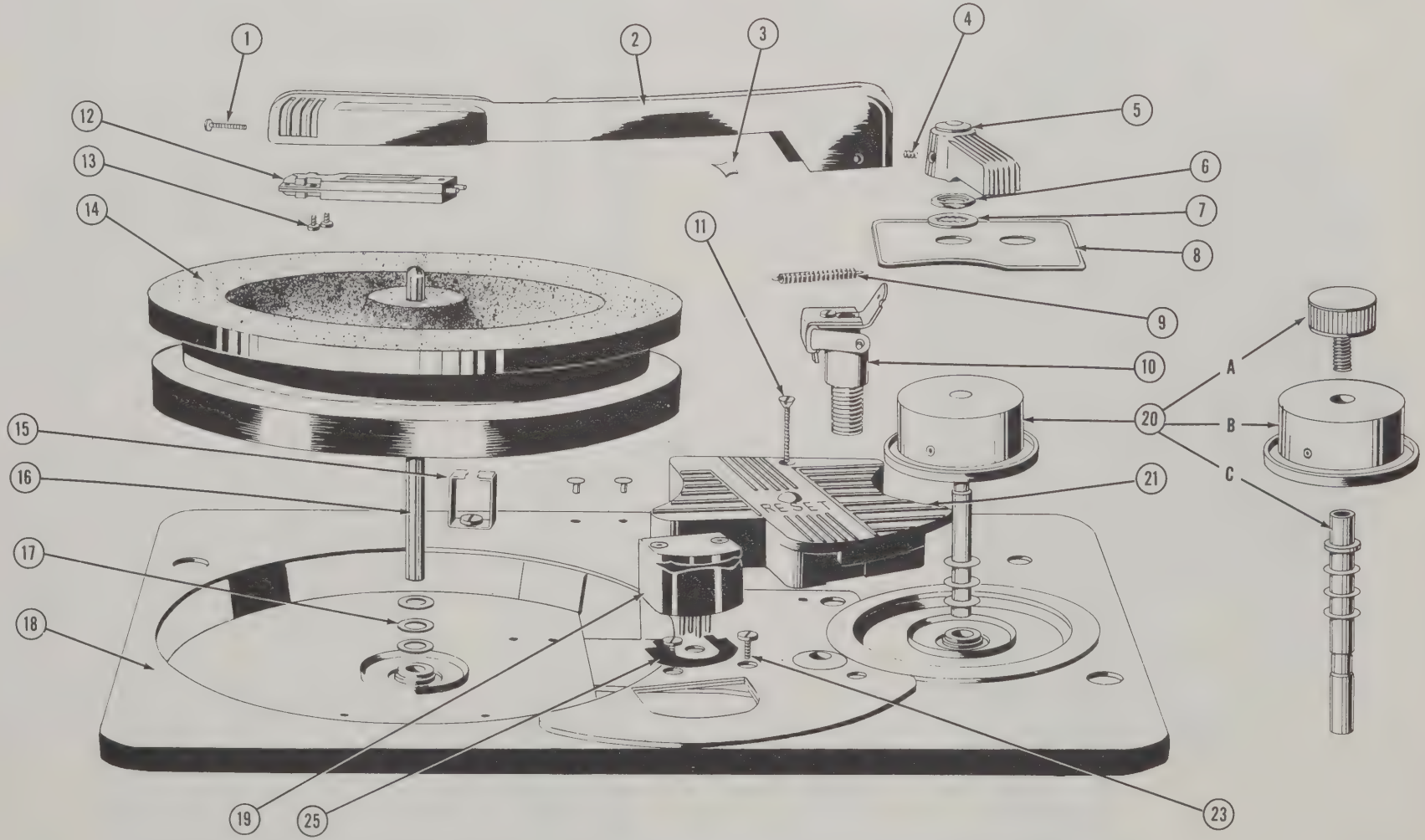
With the selector switch in "play" position, loosen the screws (65) in the motor mounting plate and adjust the motor for a clearance of approximately 5/64" between the motor drive pulley (40) and the metal pulley (47). Retighten the screws. Turn the selector switch to "rewind" position and check the clearance between the rim of the turntable and the idler pulley (29). The turntable and idler pulley should not touch when the idler pulley assembly is pushed lightly away from the turntable. The clearance is not critical.

Selector Switch Toggle Action

Check the toggle action by moving the selector switch slowly from "play" to "rewind" position and back. The toggle action should snap the bracket and post assembly (27) with a positive and even action to each position.

To adjust the toggle action:

1. Hold the drive control spring (22) with pliers and loosen the set screw in the arm and link assembly (37).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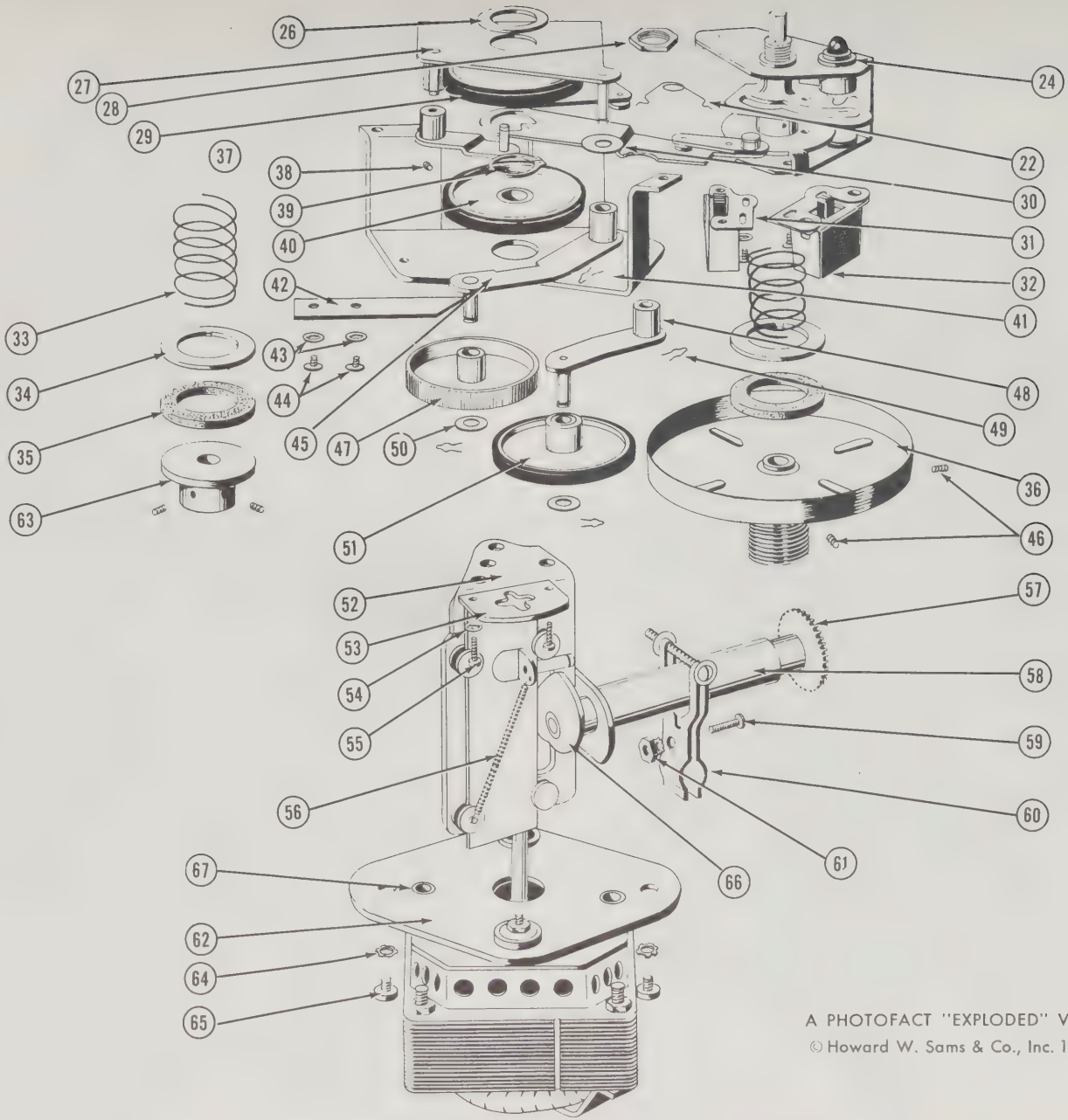

A PHOTOFACT "EXPLODED" VIEW

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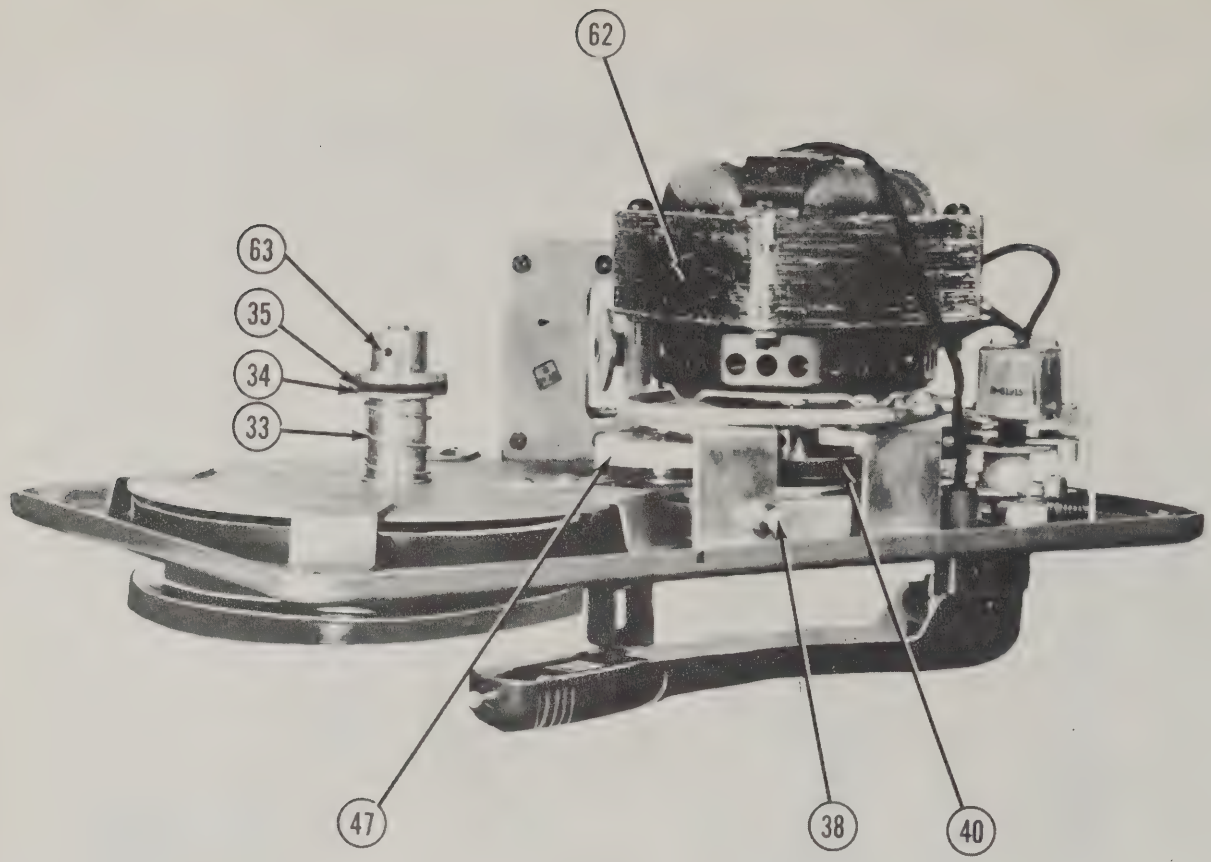


REAR VIEW

2. Moving the adjustment toward the rewind pulley (36) gives more positive action when switching to the rewind position.

3. Moving the adjustment toward the selector switch assembly (24) gives more positive action when switching to play position.

4. Normally the position should be about midway in the adjustment range.

ADJUSTMENTS

Worm and Gear Adjustment

Block the slide assembly (53) in its maximum up position so that the cam pin will not come in contact with the cam (66) while checking the worm and gear adjustment. Hold the fibre gear in one hand and rotate the rewind pulley (36) with the other hand. Check the clearance between the fibre gear and the worm at least every ninety degrees rotation of the fibre gear. The clearance should be as little as possible without causing drag or binding. To adjust the clearance, loosen the three nuts on the level wind assembly (52) about ¼ to ½ turn. Swing the entire assembly until the adjustment is proper. After retightening the three nuts (evenly) push the slide assembly through its entire stroke to be sure the recording head does not bind on the edge of the hole in the motor board.

If the end play in the cam shaft is more than approximately .005", loosen the set screw in the cam (66) and push the cam and fibre gear toward each other until the proper adjustment is reached.

Transfer Switches

Switch (31) is the "on-off" switch for the motor and should be in the "on" position for all settings of the selector switch except "off." With the selector switch in "play" position, loosen the two screws holding the switch (31) to the switch bracket assembly and move the switch in until maximum travel of the switch is attained.

Switch (32) is the transfer switch which turns the erasing oscillator on when the selector switch is in "record" position. With the selector switch in "record" position, loosen the screws holding the switch (32) to the switch bracket assembly and move the switch in until maximum travel of the switch is attained.

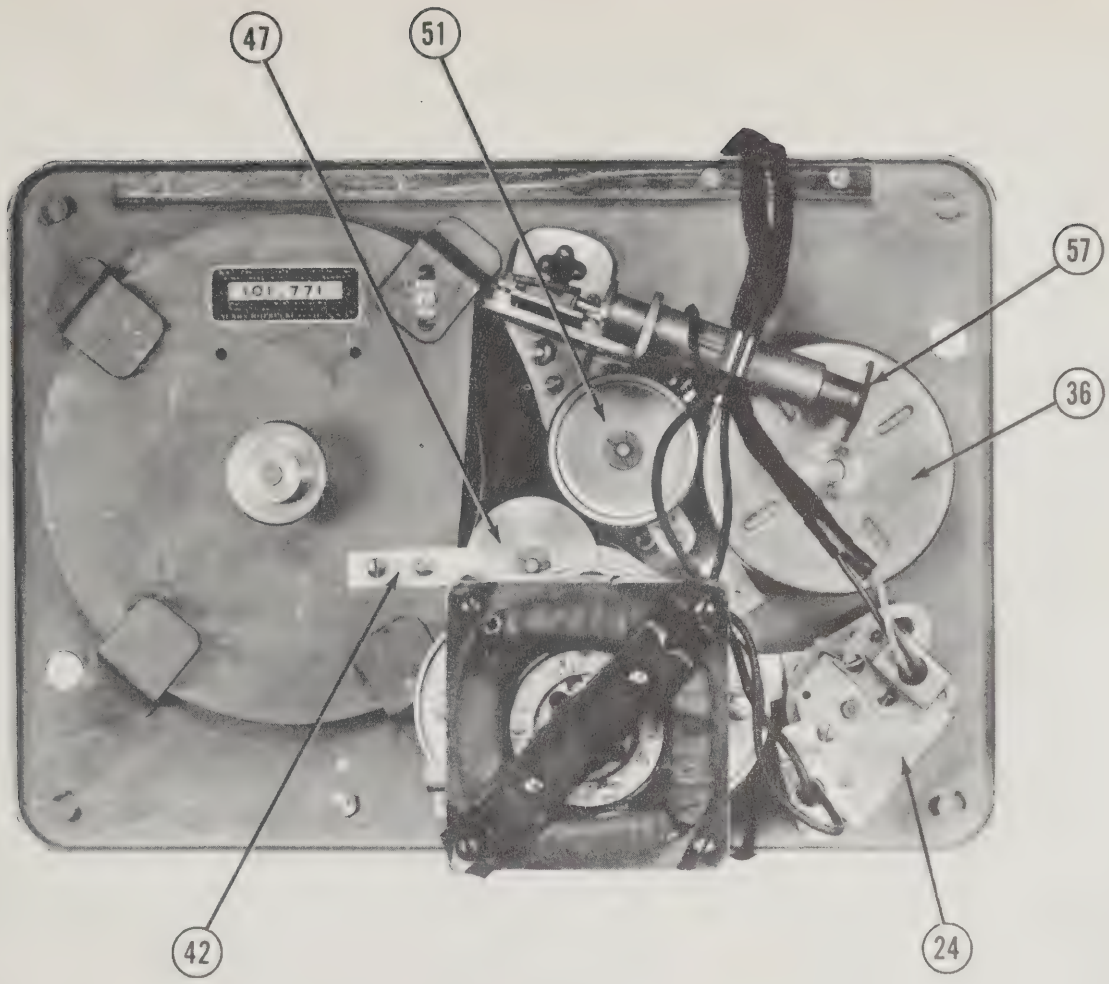
Turntable Torque Adjustment

Proper adjustment of the turntable torque is very important. Insufficient torque will result in inconsistent turntable speed, causing "wow." Too much torque will result in wire breakage when switching from "rewind" to "play."

To adust the torque proceed as follows:

1. With power connected, turn the selector switch to "play" position.

2. Loosen the locknut on the adjustment screw (38).



BOTTOM VIEW

3. Turn the adjustment screw clockwise until the turntable stops rotating.

4. Back out the adjusting screw (38) until the turntable turns at what seems to be an even speed. This will be about ½ turn of the screw.

5. Thread on a spool of wire and let it wind on to the turntable for about ten minutes.

6. Turn the selector switch to rewind position and let run until the maximum rewind speed is reached (5-10 seconds).

7. Turn the selector switch to play position. If the adjustment of (38) is correct the turntable should continue to rotate in a counter-clockwise direction for about ½ turn before reversing. If the turntable does not turn ½ turn, or if the wire breaks, the torque is too high and the adjustment screw should be turned in a clockwise direction. If the turntable turns much more than ½ turn, or if it loses wire, the torque is too low and the adjustment screw must be turned in a counter-clockwise direction.

8. Using the crystal pickup, play the single tone of a standard frequency record and adjust the screw (38) slightly in either direction for the position giving least "wow." Tighten the locknut, being careful not to disturb the adjustment of the screw. Recheck for wire breakage by going from maximum rewind speed to "play."

Level Wind Adjustment

Rotate the cam (66) so that the recording head is at the bottom of its travel. In this position the lamination slot in the recording head should be approximately 1/64" above the motor board. If the slot is closer than this, loosen the two screws holding the recording head to the slide (53), and place additional shims (25) between the slide and the head until the slot is 1/64" above the motor board.

Thread on a spool of wire and let it wind on to the turntable for about ten minutes. Turn the selector switch to rewind position and observe if the wire rubs on the reset switch trip lever at the top of the cam action after about one-half minute of rewind. The reset switch trip lever should not depress the wire more than approximately 1/64" when the cam is in its top position.

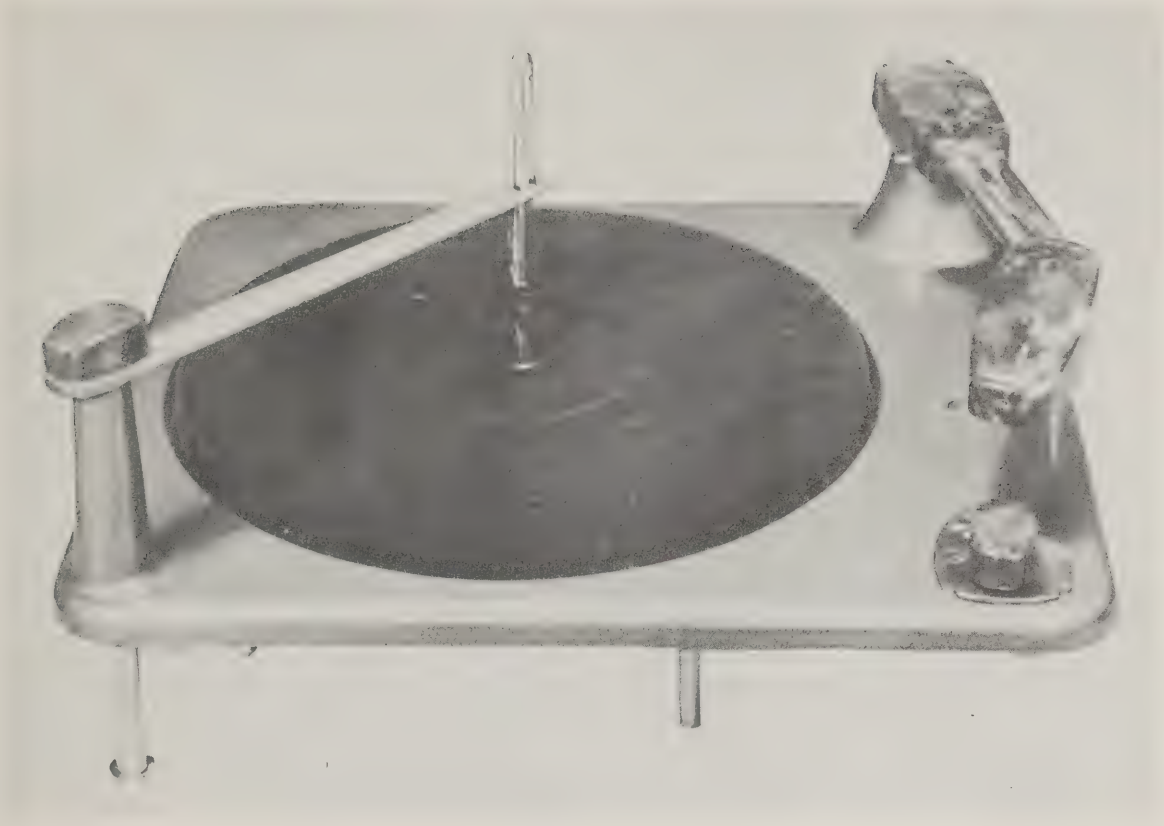
Let wire wind on to the turntable for approximately twenty minutes and observe how the wire lays into the channel. With proper adjustment it should be even all the way across the channel. If it piles up in the top of the channel, remove the turntable and add washers (17) until the condition is corrected. If the wire piles up in the bottom of the channel, washers should be removed.

After making this adjustment, let the wire rewind for approximately seven minutes and repeat the procedure of the preceding paragraph.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	R52974	Needle retaining screw
2	R62212	Pickup arm
3	R49744	Lead retaining clip
4	R49545	Screw set—No. 8-32 x 3/16" Allen headless
5	R61917	Knob—selector switch
6	R410-20	Nut—⅜-32 hex—St.—C. P.
7	R402-20	Washer—Lock ⅜ int. tooth
8	R61916	Nameplate—drive control
9	R52848	Spring—pickup arm counterbalance
10		Pickup arm hub assembly—part of item 2
11	R62010	Screw—No. 4-36 x 1" flat hd.
12	R61977	Crystal cartridge
13	R52866	Screw—cartridge attaching
14	R61969	Turntable assembly
15	R61973	Pickup arm rest
16		Turntable shaft—part of item 14
17	R62006	Washer—fiber spacing
18	R61959	Base plate assembly
19	R61979	Head—recorder
20	R61967	Rewind spool hub assembly
20A	R63182	Thumb screw
20B	R63185	Rewind spool
20C	R63187	Rewind shaft
21	R62009	Automatic switch assembly
22	R61927	Spring—drive control
23	R203-7	Screw—No. 6-32 x 7/16 bd. hd.
24	R61997	Switch bracket assembly
25	R63003	Spacer—recorder head
26	R61963	Washer—flat—brass 41/64" I. D.—1.0" O. D.
27	R61998	Bracket and post assembly
28		Nut—lock type—part of item 2
29	R63733	Wheel—idler
30	R44641	Washer—spring
31	R61994	Switch assembly—on-off
32	R61995	Switch assembly—transfer
33	R61975	Spring—turntable
34	R61970	Washer—keyed
35	R61971	Washer—felt
36	R61966	Pulley assembly—rewind
37	R62002	Arm and link assembly
38	R203-10	Screw—No. 6-32 x ⅝" bd. hd.

Ref. No.	Part No.	DESCRIPTION
39	R61049	Retaining ring
40	R64543	Motor drive pulley
41	R61930	Motor mtg. bracket
42	R63051	Stop—knurl wheel
43	R401-6	Lock washer
44	R203-3	Screw—No. 6-32 x 3/16" bd. hd.
45	R61982	Link assembly—movable
46	R49533	Screw—No. 6-32 headless set—Allen
47	R62000	Pulley and bushing assembly (knurled)
48	R61983	Link assembly—rewind
49	R61972	Clip—spring
50	R61981	Washer—cloth
51	R64544	Idler pulley
52	R61965	Level winder assembly
53		Slide assembly—part of item 52
54	R400-4	Washer—lock No. 4 split
55	R62068	Screw—No. 4-40 x ⅜" fil. hd.
56	R61964	Spring—level winder
57	R49786	Fiber gear and shaft assembly
58		Part of level winder assembly
59	R203-6	Screw—cable anchoring
60	R61920	Cable clamp
61	R411-6	Nut—No. 6-32 hex
62	R61985	Motor assembly
	R61986	Motor—60 cycle—115 volts
	R61988	Plate—motor
	R61913	Plate—motor mtg.
63	R61974	Spring support—turntable shaft
64	R402-10	Washer—lock No. 10 ext. tooth
65	R205-6	Screw—No. 10-32 x ⅜" bd. hd.
66	R49787	Level wind cam assembly
67	R62003	Grommet—rubber
	R61543	Cable and plug—transfer
	R62008	Cord—line
	R61960	Spring—compression—(switch bracket assembly)
	R61193	Spring—compression—plate mtg. (heavy)
	R62007	Spring—compression—plate mtg. (light)
	R61976	Spring—compression—pulley assembly—rewind
	R61984	Drive link assembly
	R63708	Shield—motor
	R61968	Washer—retaining



TOP VIEW

GENERAL INFORMATION

The V-M 400 changer is designed to play automatically up to ten 12-inch, twelve 10-inch, or ten intermixed records. The changer will shut off automatically at the completion of the last record. The unit is designed to be jam-proof. The pickup arm may be held and the control knob may be turned to any position during cycle.

Manufactured by V-M CORPORATION, Benton Harbor, Michigan

THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

AMECO.....37 E. 18th Street, New York, New York
Crosley Corporation.....1329 Arlington Street, Cincinnati, Ohio
Electronic Laboratories.....122 W. New York Street, Indianapolis, Indiana
Howard Radio Company.....1731 Belmont Avenue, Chicago, Illinois
Majestic Radio & Television Corp.....50th and Rockwell, St. Charles, Illinois
Motor Parts Company.....1229 N. Broad, Philadelphia, Pennsylvania
Stewart-Warner Corporation.....1826 Diversey Parkway, Chicago, Illinois
Templetone Radio Mfg. Company.....100 Garfield, New London, Connecticut

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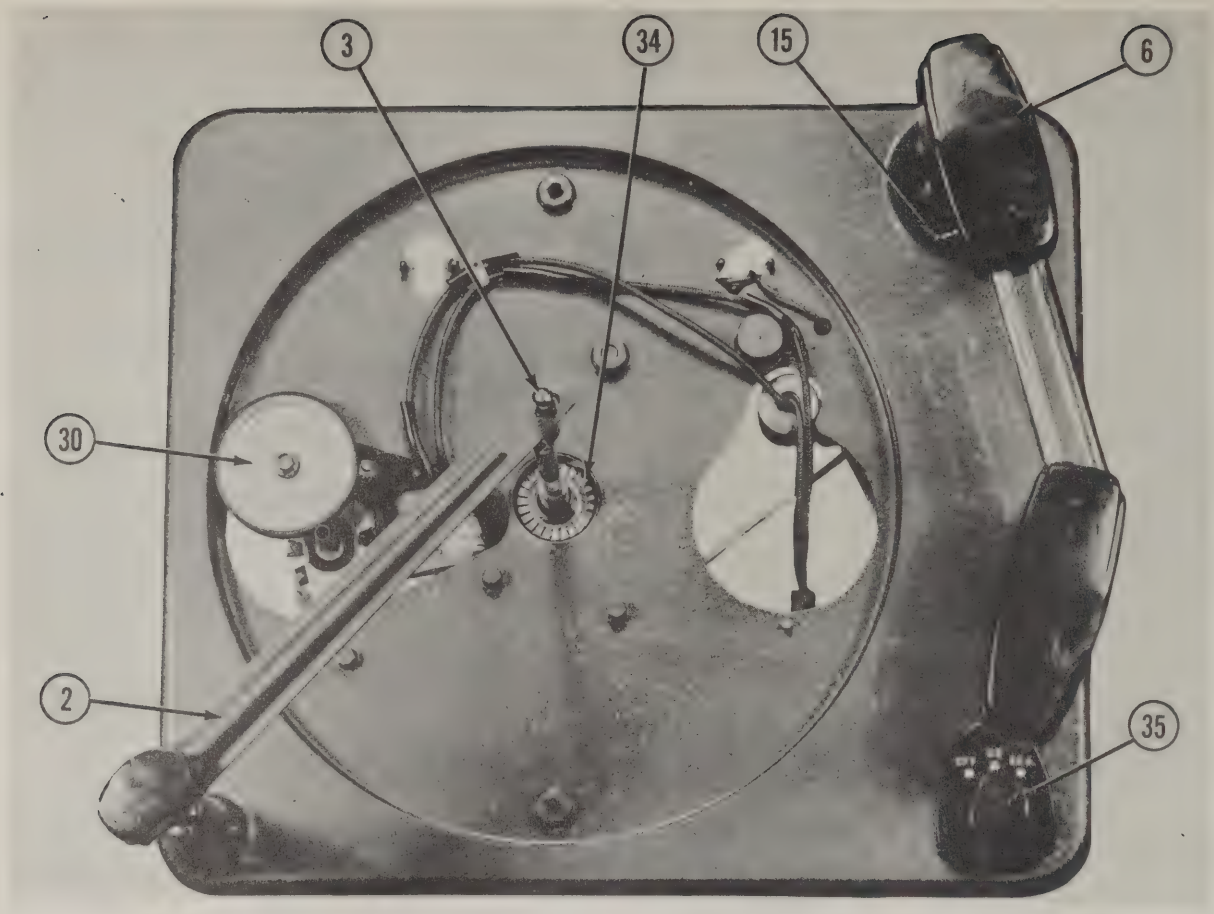
V-M
MODEL 400

V-M
MODEL 400



TOP VIEW LESS TURNTABLE

Manual Operation:

Odd-sized or warped records, and home recordings should be played manually:

1. Raise the record support clear of the spindle and swing the record support either direction until the pin in the support shaft drops into the locating groove.

2. Place record on turntable:

(a) For the record to pass the step on the spindle, tilt the record toward the back of pickup arm and work record carefully over step.

3. Turn control knob (35) to "On" position.

4. Press down on the trip lever (15) which is located near the back of the pickup arm.

5. Place pickup arm on record.

6. Upon completion of the record move the pickup arm all the way in to the spindle before returning it to its rest position.

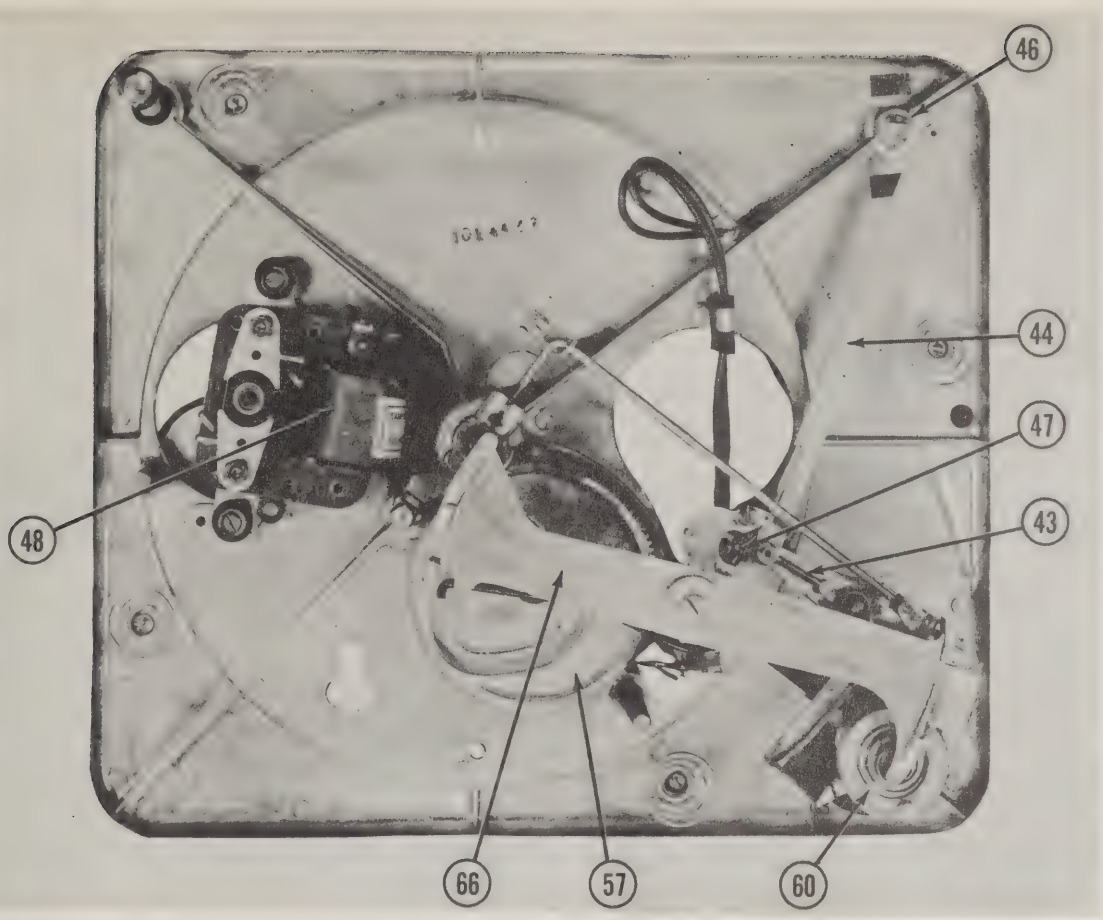
7. When playing records from the inside out, move the pickup arm all the way in to the spindle before setting it down on the first playing grooves of the record.

Automatic Operation:

1. Pull straight up on the record support knob (1) and swing the record support in either direction until the pin in the shaft drops into the locating groove.

2. Place as many as ten 12-inch, twelve 10-inch, or ten records intermixed on off-set shoulder of the spindle. Steady the records with one hand and replace the record support over the spindle. Press down gently on the record support knob until records are parallel with the turntable.

3. Turn the control knob clockwise to "Rej." and release. The changer will now play the entire stack and, on completion of the last record, will return the pickup arm to the rest post and shut off automatically.



BOTTOM VIEW

4. To reject a record at any time while it is playing, turn the control knob to "Rej." and release.

Repeating a Record:

1. Pull straight up on the record support knob and swing the record support in either direction until the pin in the shaft drops into the locating groove.

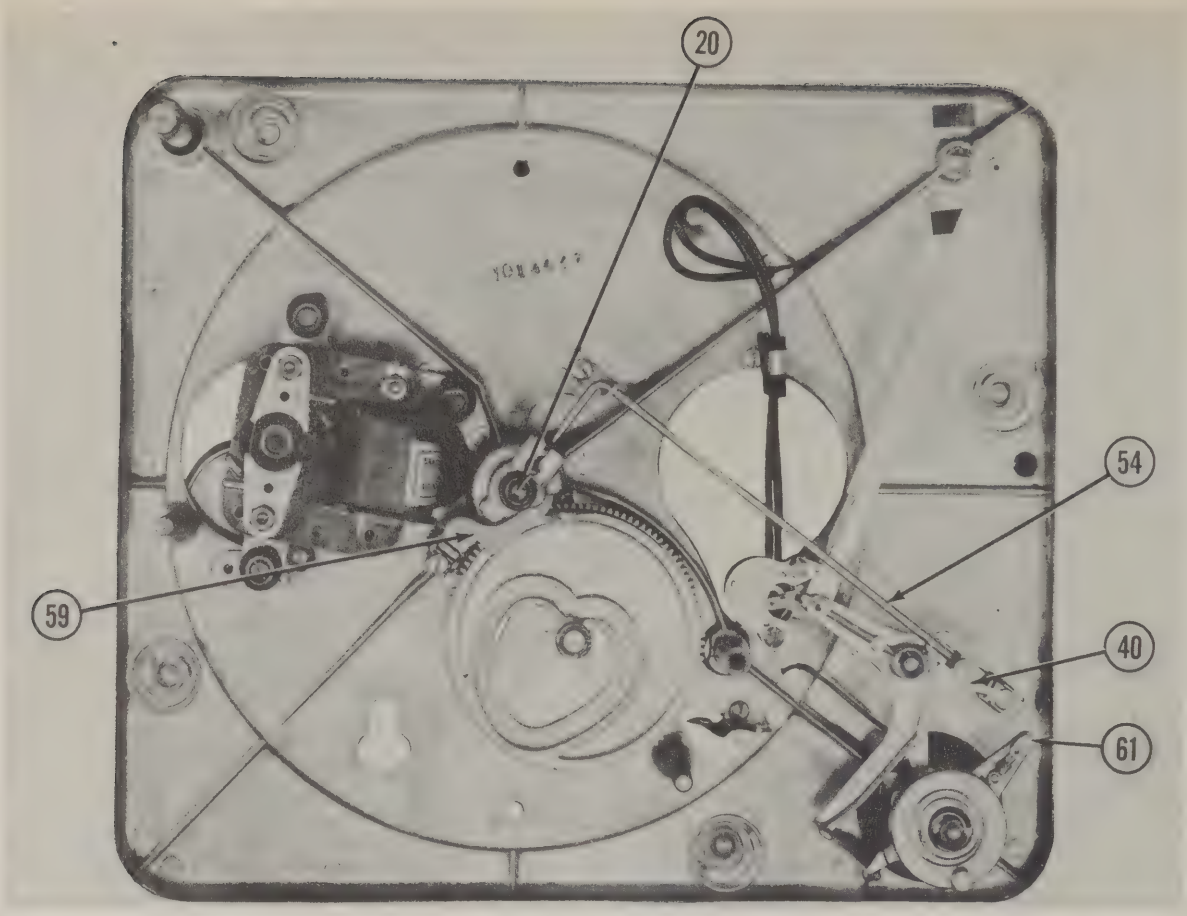
2. Remove any records remaining above the off-set shoulder of the spindle. Do not replace the record support over the spindle. The changer will now repeat the top record on turntable until control knob is turned to "off."

CHANGE CYCLE

When the control knob (35) is turned to the position marked "On," the control crank (46) is turned. The control crank then moves the control link (44) and, in turn, the control lever (43). Thus point "A" of the control lever engages the switch arm of the switch assembly (47), turning the motor on and starting the turntable to rotate.

By turning the control knob to "Rej.," point "B" of the control lever is pivoted against the pin extending up from the ratchet (40). The bent end of the trip rod (54), which ordinarily rests against the catch (49) to prevent the catch from being disengaged from the latch (59), is now turned away from the catch through the action of the ratchet. The catch is now free to move backward. The part of the latch (59) on which the catch rests is on an angle. This allows the latch spring (34A) to move the latch up forcing the catch out and raising the pinion gear clutch teeth (34) to engage the clutch teeth of the turntable hub. With this engagement the pinion gear is rotated, thus turning the main cam (57).

As the pickup arm moves across the record, the ratchet pawl (61) slides along the face of the ratchet (40). At the end of the record, the eccentric groove causes the pickup arm to oscillate back and forth. As the arm moves away from the



BOTTOM VIEW LESS LIFT ARM

spindle, the pawl (61) on the ratchet arm (60) straightens, pushing against the ratchet (40). This causes the ratchet and the trip rod (54) to turn down. This gives the catch (49) free movement to be disengaged from the latch (59) through the action of the latch spring (34A) pushing against the latch. The pinion (34) then engages the clutch teeth of the turntable hub by the upward movement of the latch against the pinion. The pinion now rotates, turning the main cam (57).

As the main cam turns, the roller (67) of the lift arm (66), which rides in the heart-shaped groove on the bottom of the gear, actuates the lift arm. One end of the lift arm controls the action of the pickup arm. The other end of the lift arm raises and lowers the roller (20) on the bottom of the spindle shaft. As the lift arm moves, cam "B" of the lift arm contacts the lift rod (64), thus raising the pickup arm off the record. As soon as the pickup arm is fully raised, the cam surface "C" on the extreme end of the lift arm contacts the boss extending down from the ratchet arm (60) swinging the pickup arm out to clear the records. As the pickup arm is swinging out, a projection on the set-down locator (45) snaps into a mating indentation in the ratchet arm (60) caused by the pressure of the lift rod spring (63) against the ratchet arm. When this occurs, the set down locator turns with the ratchet arm. Inside the ratchet arm the safety spring (56) holds a casting on the bottom of the pickup arm locator assembly (55) against a stop surface inside the ratchet arm so the two assemblies move together unless the pickup arm is held during the cycle. In this case, the safety spring allows the ratchet arm to move even though the pickup arm is held, thus preventing injury to the mechanism. The pickup arm is moved out until a stop extending down from the hinge body (18) strikes a stop in the base plate. The pickup arm is now clear of the records so they are free to drop to the turntable. After the hinge body strikes the stop, preventing the pickup arm and hinge body

from moving farther, the lift arm (66) continues to turn the ratchet arm (60) a little farther around. By this movement the ratchet arm turns the locater which, in turn, turns the pickup arm locator (55), the hinge bearing (22), which is fastened to the pickup arm locator by screw (21), and the adjusting ring (11) which is fastened to the hinge bearing by the two set screws (10). This causes a gap between the end of one leg of the catch (17) and the stepped catch surface extending from the adjusting ring. This allows the catch spring to pull the leg on the catch (17) around until it hits the stop extending out at right angles to the outer step in the leg on the adjusting ring. In this position the pickup arm will set down for 10-inch position. When a 12-inch record is dropped, the record hits the trip lever (15) which, in turn, pivots the hinge cam (16) against the catch (17) to move it away from the outer step of the adjusting ring. The catch is held in this position by the step in the hinge cam which rests on the surface of the catch to prevent the catch from returning to its original position. The pickup arm is now set for 12-inch set-down by the tension of the ring spring (9) which pulls against the hinge body (18).

At approximately the same time cam "C" contacts the boss on the bottom of the ratchet arm, the spindle roller (20) contacts cam "A" of the lift arm (60). The roller then raises, causing the pusher shaft (19A) to move upward. An ear extending from the pusher spring (4A) presses against the bottom end of the record pusher (4), thus holding the pusher against the shaft so that when the pusher shaft (19A) raises the pusher (4) moves straight up so as to enter the center hole of the record. The bottom of the groove of the pusher now reaches the pin in the spindle and, as the shaft continues to raise, it moves the pusher (4) forward pivoting it around the pin, thus dropping a record to the turntable. The portion of the pusher extending above the off-set ledge of the spindle is slightly less than the thickness of a record.

The guide (3A), which is held down by spindle guide spring inside the spindle, prevents more than one record at a time from being ejected. When records are removed from the turntable, the guide slides straight up allowing free movement up the spindle.

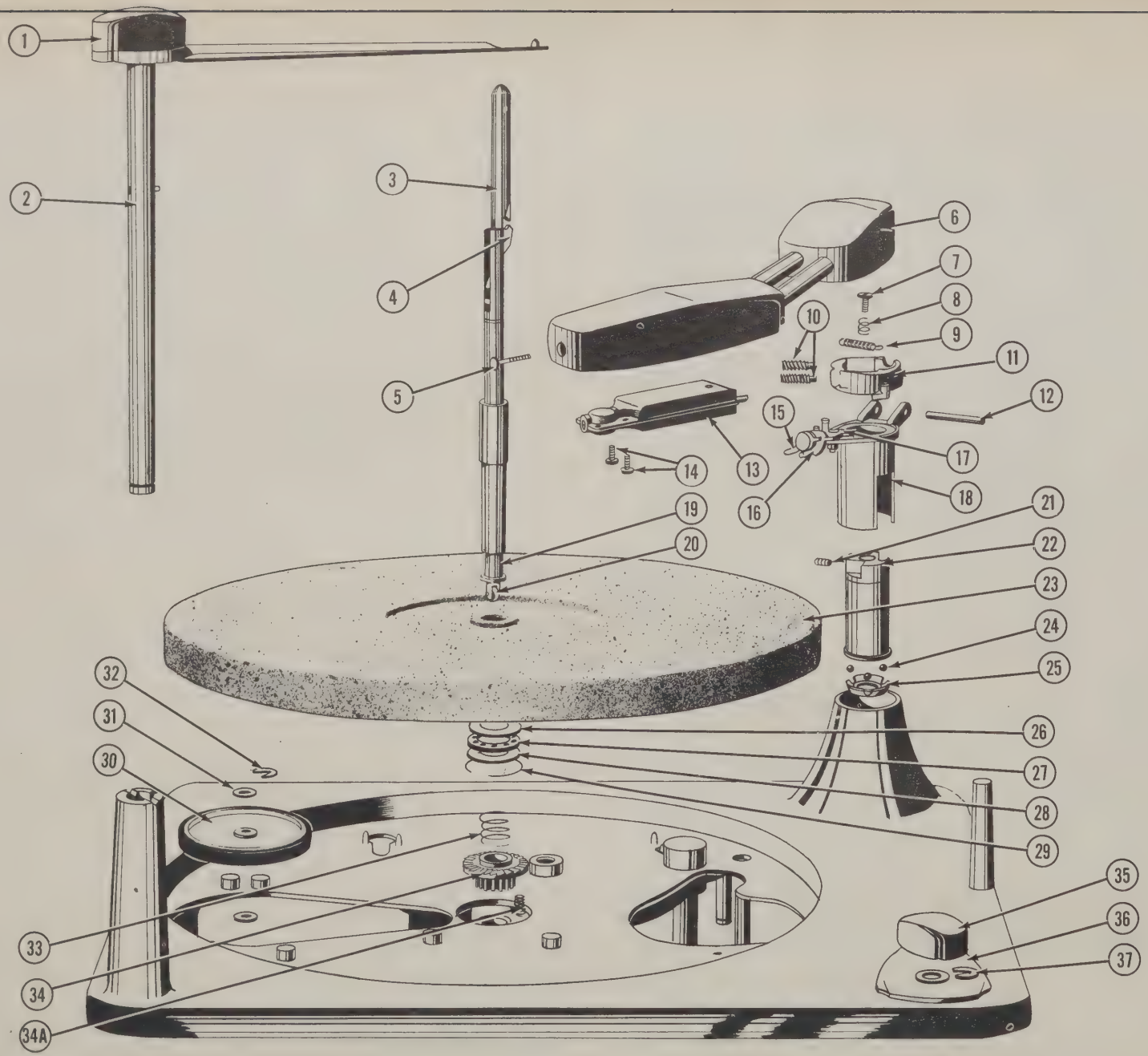
The heart-shaped groove in the bottom of the cam (57) now reverses the movement of the lift arm (66) returning the spindle assembly to its original position, swinging the pickup arm in, positioning it for set-down and lowering the pickup arm to the record. When the lift pin is completely lowered, the tension of lift rod spring (63) against the ratchet arm is released. The ratchet arm will now drop down forming a gap between the indentation in the ratchet arm and the projection on the locator. This allows the pickup arm to have free movement on the record.

The raised rim on the bottom of the cam (57) comes in contact with the latch (59), pushing it down from the pinion to engage the catch (49) and to be locked there by the trip rod (54), which presses against the step in the catch.

The pinion (34) is now free to drop, and the spring (33) pressing against the pinion helps to disengage the clutch teeth of the pinion and the turntable hub; thus completing the change cycle.

Automatic Shut-off:

After the last record has been played, the record support (2), which is resting on the spindle ledge, prevents the record pusher (4) from moving forward; hence, the shaft (19A) and pusher housing (19) is prevented from moving up as far as it ordinarily does. This causes the roller spring inside the housing to be compressed by the roller plunger (20A) pushing upward, thus preventing injury to the spindle assembly. With the housing and shaft being held down, the bent end of the cut-off lever (65) hits the ring around the pusher housing turning the cut-off lever around 90°. The bent end of the cut-off lever on the pickup arm side of the lift arm (66) is turned up. As the lift arm returns to its starting position, the turned up end of the cut-off lever contacts a boss extending down from one leg of the control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A PHOTOFACT "EXPLODED" VIEW

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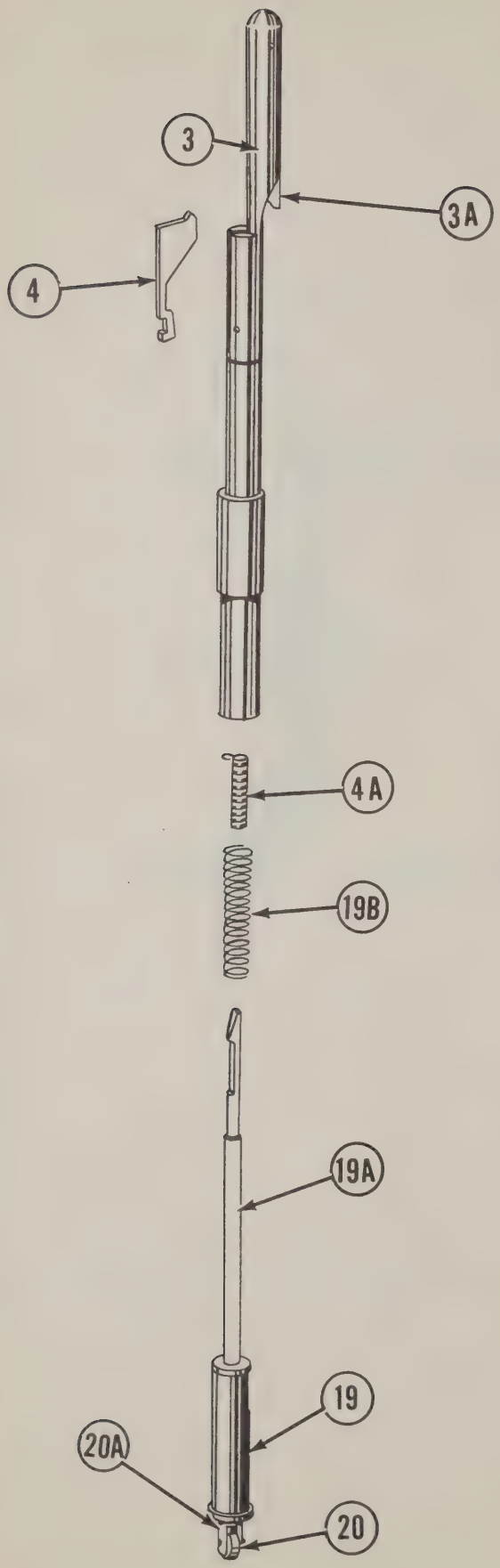


EXPLODED VIEW SPINDLE ASSEMBLY

lever, thus actuating the control lever, turning the switch to "off" position, and at the same time, another leg on the control lever catches the extension on the set-down locator (45) preventing the pickup arm from swinging in. As the lift rod rides down the incline of cam "A" of the lift arm (66), the pickup is lowered to the pickup arm rest. The next time the changer cycles, the cut-off lever is returned to its original position.

ADJUSTMENTS

Needle Set-down:

The set-down position of the needle is adjusted by means of the two adjusting screws (10). If the needle is setting down too far out on the record, loosen the back screw (10) and tighten the front screw to lock the adjustment in place. If the needle is setting down too far in on the record, loosen the front screw and tighten the back one. If the hinge bearing (22) has been removed or the set screw (21) has been loosened, the relationship between the hinge bearing and the pickup arm locator assembly must be reset. The adjustment is as follows. Loosen the Allen set screw (21) enough to allow the hinge bearing to slide on the pickup arm locator assembly shaft (55). Place a 1/32 inch shim between the set-down locator (45) and the ratchet arm (60). Turn the control knob to the "off" position. Place the pickup arm on the rest. In this position the arm of the locator (45) should be in locked position by the leg of the control lever (43). Take up all the play between the parts by pressing up on the bottom of the ratchet arm (60) and down on the hinge bearing (22). Tighten the set screw (21) with an Allen wrench and remove the shim.

Pickup Arm Height:

The height of the pickup arm is adjusted by the screw (7) located on top of the lift rod (63). The height should be adjusted so that the underneath side of the pickup arm clears the rest post by ⅛" to 3/16".

TROUBLES

Record Does Not Drop When the Changer Cycles:

1. Spindle pusher shaft (19A) broken:
   (a) To replace the roller assembly (19), loosen the set screw which holds the spindle in the spindle housing of the base plate.
   (b) Slip the pusher shaft return spring (19B) over the pusher shaft.
   (c) Turn the ear of the pusher spring (4A) until it faces out the milled opening of the spindle.
   (d) Insert the roller assembly in the spindle with the flat milled section at the top of the pusher shaft facing the milled opening in the spindle.
   (e) Press down on the spindle so as to raise the pusher shaft (19A) in order to hook the pusher (4) around the pusher pin. Press the pusher back until it touches the spindle body.
   (f) Push down and back on the pusher end slightly upon the bottom of the roller assembly until the pusher snaps into place.
2. Pusher spindle not moving far enough forward to eject a record:
   (a) Check the screw that holds the lift arm to see if it is turned all the way in.
   (b) Check to see if roller spring in the housing (19) is compressed slightly when the roller (20) nears the end of the incline on cam "A" of the lift arm. If the roller spring is compressed and the pusher does not move forward far enough to eject a record, the spindle should be replaced.
3. Pusher raises outside spindle body:
   (a) Check the pusher shaft (19A) to see if it is bent. A bent shaft will cause the pusher to raise the record instead of pushing it off the spindle ledge.
4. Lift arm roller broken off:
   (a) If the lift arm roller (67) is broken off the lift arm will not turn when the cam (57) revolves.

Two Records Drop at Once:

1. Hole in records too large.
2. Spindle slide not fully down:
   (a) Check the slide (3A) to see if it is bent or binds at any point.
3. Record support binding on spindle:
   (a) Check spindle to determine if it is straight.
   (b) Check record support to see if it is square with the spindle.
   (c) Check for bind of the record support shaft (2) in the shaft post on the base plate.

Changer Trips Before Completion of Record:

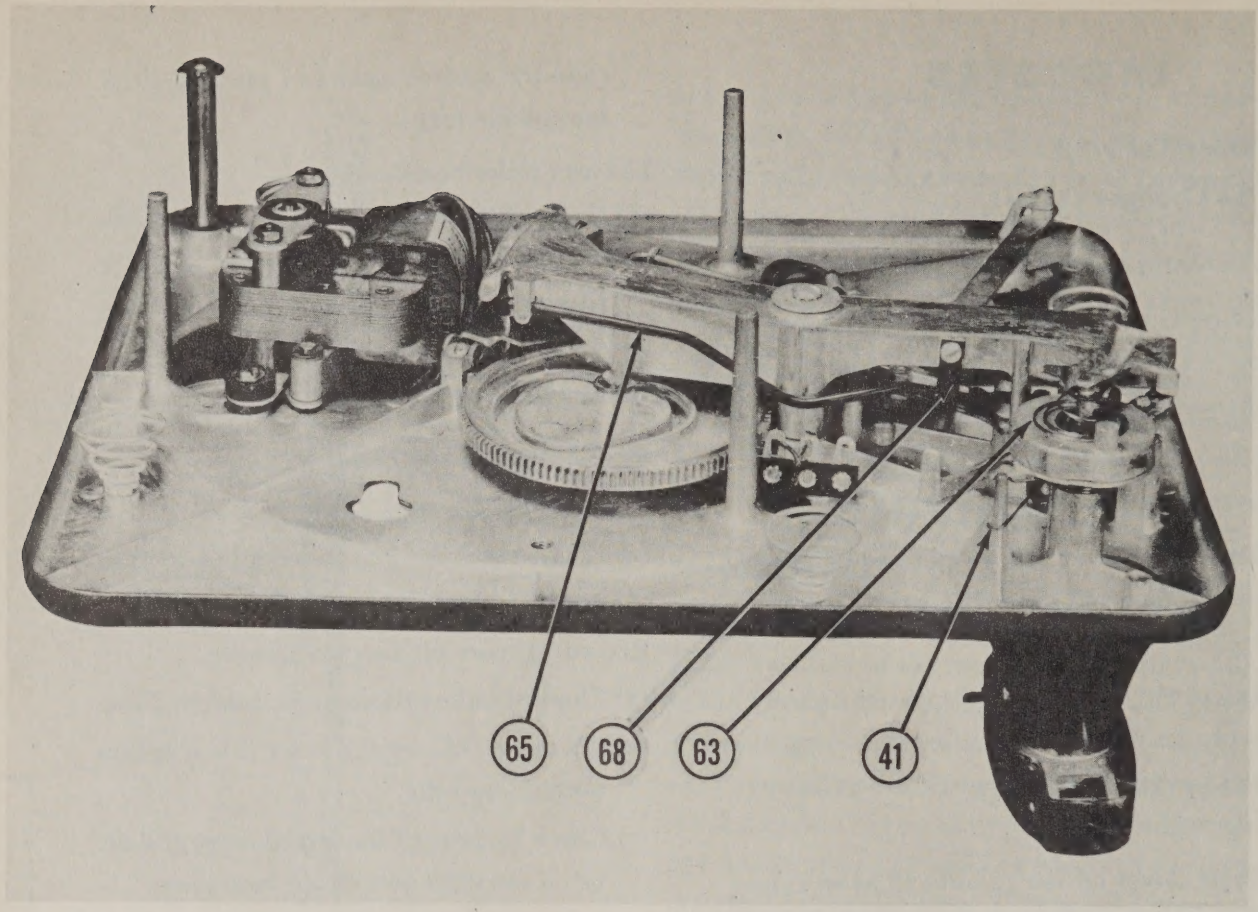
1. Hole in record too large.
2. Spring (40A) loose or does not have enough tension to fully latch the trip catch (49) and the trip rod (54).
3. Trip rod binds.

Changer Does Not Cycle on Completion of Record:

1. Trip rod (54) binds.
2. Pawl (61) binding or pawl spring (40A) loose.
3. Rough surface on end of trip rod.
4. Check latch for binding.
5. Check for burrs on spindle bushing preventing the pinion (34) from raising.

Needle Does Not Track Across the Record:

1. The set-down locator binds on the ratchet arm:



REAR VIEW

(a) There should be a 1/32" gap between the ratchet arm (60) and the locator (45) when the mechanism is not in cycle. See "Needle Set-Down Adjustment."

2. Hinge bearing binds:
   (a) Lubricate with light oil.

Changer Continues to Cycle:

1. Insufficient tension of spring (40A).
2. Binding in trip rod bearings (53 and 38).
3. Reject spring (44A) loose.
4. Check control crank (46), control link (44), and control lever (43) for binding.

Changer Shuts Off Prematurely:

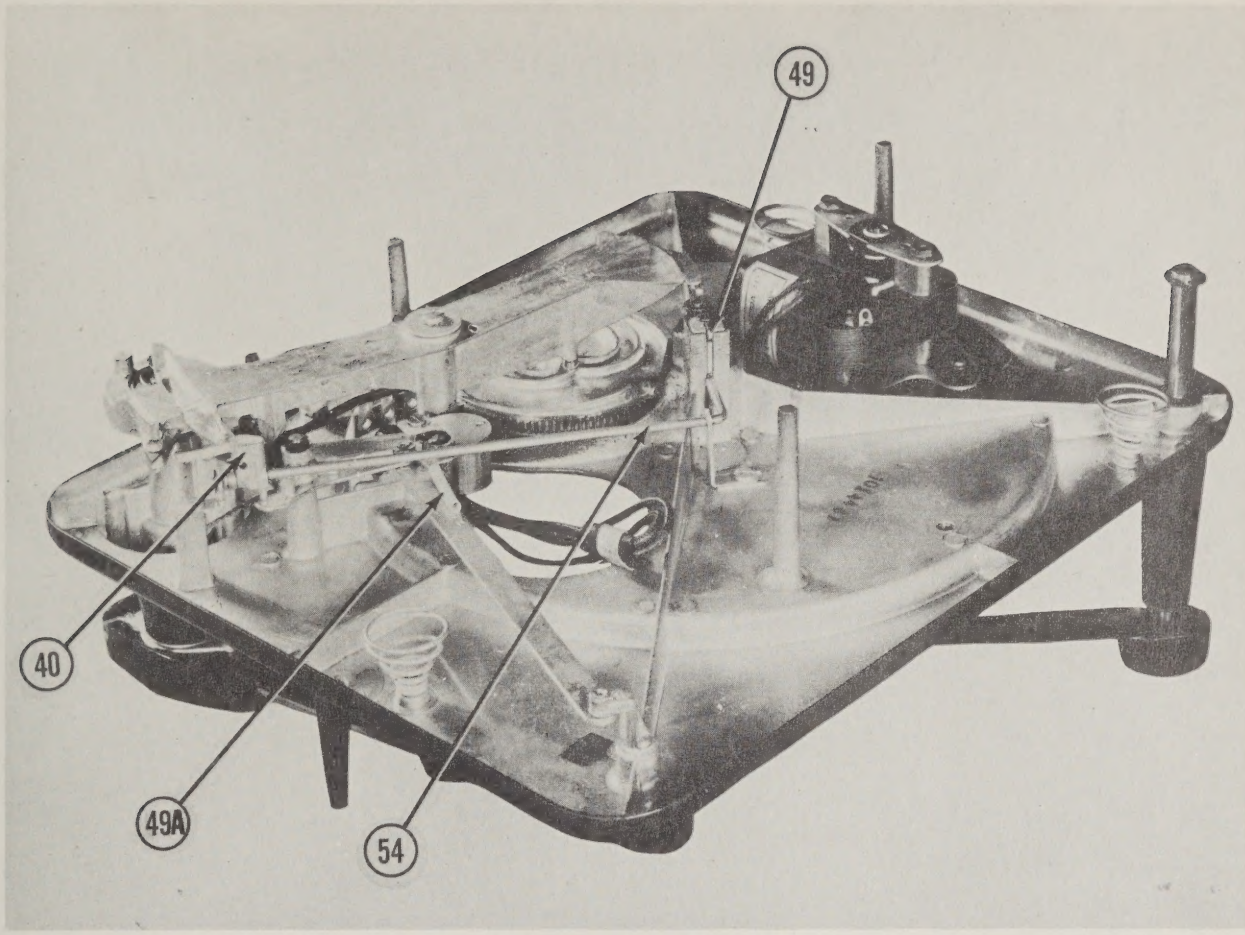
1. Roller spring inside the housing (19) weak, therefore not pushing the pusher assembly high enough to clear the end of the cut-off lever.
2. Cut-off rod not being reset.

Changer Does Not Shut Off After Last Record Has Been Played:

1. Record support (2) binding and does not drop to spindle ledge.
2. Cut-off rod not engaging the ring on the housing (19):
   (a) Check the screw that holds the pickup arm to the base plate to see if it is turned all the way in.

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer



SIDE VIEW

should be lubricated as follows: Apply Lubriplate to:

1. Hinge bearing (22).
2. Ratchet arm (60) and set-down locator plate (45).
3. Cam faces on lift arm (66), lift arm bearing, and lift arm cut-off rod bearings.
4. Between lever spring (68) and cut-off rod (65).
5. Heart-shaped cam track on cam (57) and cam bearing.
6. Spindle between roller plunger (20A) and housing (19), and between the housing and the spindle body.
7. Turntable ball bearing (27).

Apply small quantity of light oil to:

1. Pickup arm locator assembly (55) and ball bearings (24) in pickup arm post.
2. Ratchet pawl bearing (61).
3. Trip rod bearings (38) and (53).
4. Control lever bearing (43).
5. Catch bearing (49) (if changer has this catch).
6. Latch bearing (59) (if changer has this latch).
7. Turntable and spindle bearing.
8. Pinion bearing (34).

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	1711	Knob
2	1712	Record support assembly
3	1503	Spindle assembly
3A	1556	Guide
4	1552	Record pusher
4A	1553	Pusher spring
5		Needle screw
6	1702	Pickup arm assembly
7	1616B	Adjusting screw
8	1901	Lock spring
9	1574	Ring spring
10	1580	Adjusting screw
11	1840	Adjusting ring and screw assembly
12	941B	Hinge pin
13	649E	Crystal cartridge
14	713	Screw No. 4 x ¼" type "Z"
15	1582	Size change trip lever
16	1581	Hinge cam
17	1578	Catch
18	1576	Hinge body
19	1837	Spindle pusher assembly
19A		Pusher shaft (part of 19)
19B	1560	Pusher shaft spring
20	1536	Spindle roller
20A	1565	Roller plunger
21	1610	Screw
22	1609	Hinge bearing
23	1517	Turntable
24	724	Ball bearings (3 balls)
25	1614	Bearing spacer
26	1543	Turntable washer
27	1544	Turntable bearing
28	1543	Turntable washer
29	1549	Retainer spring
30	1514	Sampsel drive wheel assembly
	1515	Russell drive wheel assembly
	482	G.I. drive wheel
31		Fiber washer
32		"C" washer
34	1624	Pinion gear
33	1735	Pinion spring

Ref. No.	Part No.	DESCRIPTION
34A	1648	Latch spring
35	1711	Knob
36	963-2	Escutcheon
37	1719	"C" washer
38	1729	Trip rod bearing
39	709-A	Screw No. 6 x ¼" type "Z"
40	1590	Ratchet
40A		Torsion spring
41	1631	Return spring
42	1654	Washer—fibre
43	1635	Control lever
44	1725	Control link
44A	1721	Reject spring
45	1630	Set-down locator
46	1726	Control crank
47	1519	Switch assembly
48	1881	Russell 220-volt, 50-cycle motor
	1923	Russell 110-volt, 50-cycle motor
	1525-A	Motor assembly 110-volt, 60 cycle
49	1644	Catch
50	1646	Catch plate
51	1600	Grommet spacer
52	1717	No. 6 x ⅝" type "Z" washer
53	1591	Trip rod bearing
54	1921	Trip rod
	1523	Ratchet assembly
55	1522	Pickup arm locator assembly
56	1638	Safety spring
57	1601	Cam
58	1645	Pin
59	1647	Latch
60	1605	Ratchet arm
61	1606	Ratchet pawl
62	1697	Pawl spring
63	1620	Lift rod spring
64	1613	Lift rod
65	1595	Cut-off lever
66	1594	Lift arm
67	1597	Roller
68	1599	Lever spring